

FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.

Aerial Nomenclature. We publish two letters this week from correspondents who are rather hard on the lay Press for its contributions to current aerial nomenclature? Terminology is a subject that lends itself to endless discussion, but experience tends to show that abstract arguments in this matter produce comparatively little result in the long run. In a serious consideration of the pros and cons of this or that word, every possible reason seems to be advanced save the one that decides the question by popular usage.

Intuition rather than a knowledge of etymology is needed in the choice of terms likely to find an abiding place in the dictionary. And even dictionaries change their contents in a manner that is little short of amazing. English as she is spoken to-day is far from the English of our comparatively recent ancestors. Words that they used in one sense we now use in another, and terms that were then in everyday currency are now no longer known. When we chose "FLIGHT" as a title for this Journal, we felt we had the right word, and not for all the arguments of all the professors in Christendom would we have changed it.

The truth of the matter in connection with technical terminology is that no one is interested in a word until the occasion for using it frequently arises. We have sat on committees, and settled with all seriousness terms that, as it has happened, there has been but little occasion to use at all. If circumstances suddenly arose that brought one or other of the subjects to which they related into public prominence, it is just as likely as not that some other expression would be chosen on the spur of the moment—and the man who would choose it would probably be the ubiquitous daily journalist.

For our own part, we feel no prejudice on the origin of words, but have a strong preference, nevertheless, for a good English expression, if there is one forthcoming that meets the case. Although it is not, perhaps, always as apparent as it should be, the real purpose of writing and of speech is to convey information, and on this hypothesis it becomes a *sine qua non* that one should use those words that are likely to be best known to the people interested, no matter whence these words have come.

France, for example, has supplied a considerable proportion of our current technical vocabulary, because modern aviation developed there first, and Englishmen who early became interested in flying had perforce to learn that language. It remains to be seen which of these words will survive. Initially, their use is a convenience, partly because it saves trouble and partly because they are really adopted into the language of the early enthusiasts, and so render genuine service as vehicles of precise meaning. But, as the French influence in English aeronautics declines, so will the unnecessary French words—those for which there are convenient English substitutes—gradually go out of use. A few, like *chauffeur* and *chassis* in the case of motoring, will pass permanently into the language.

The retention of these two words in particular affords an interesting study. For obvious reasons, it was desirable to possess a distinctive term for the professional driver of a vehicle that is often also driven by the owner for his own pleasure. The English mind clothed the French word *chauffeur* with a suitable meaning for the purpose, and adopted it as a matter of convenience in this particular. Similarly, the word *chassis* offered itself as a neat expression for what we might have had to call the "machine," and thus saved a valuable generic from being appropriated for a limited technical use.

Whatever patriotic prejudice one may feel in favour of

one's own language, it is impossible not to admire the singular appositeness of the Frenchman's choice of technical terms. Who, for instance, would not envy a language so adaptable as that which with accommodating grace turns *atterrissage* into *amerrissage* when the aeroplane alights on the sea?

There is, perhaps, something to be said for the international convenience of foreign terminology in technical literature, but in speech the phonetic values of foreign expressions are mostly different in English pronunciation, and so they tend to lose a common international meaning. It is debatable whether foreign words should be Anglicised or pronounced with the accent of the country of their origin; but here again custom settles the matter without argument, and it generally goes hard with the original French.

The subject is, as we have said, one that tends to inspire discussion, but, as far as we have been able to judge, we must confess that discussion has very little effect. Between experts, it is a matter of convenience to abbreviate long explanatory phrases into a single technical word, but when it comes to telling someone else about it, it is necessary to resort again to the explanatory phrase. "Alpha" is as good a name as any other for the α particle. It suffices its technical purpose provided there has not previously been another α particle of a different kind with which the present α particle can be confused. If in the progress of science someone should discover that the α particle ought to have been called x, the lay mind is equally under the necessity of first obtaining an explanation couched in the words of the modern dictionary before it is in a position to understand the meaning of either. And the moral of that is, as the Mad Hatter would say, that the complete art of writing or speaking includes the intelligent choice of the vocabulary best suited to the particular purpose to be served at the moment.

* * *

**The New
Army Air
Department.**

We were able last week to make the bare announcement that the War Office has decided upon the constitution of a separate department to deal with all matters relating to military aviation, with Brig.-Gen. Henderson at its head, with the title of Director-General. This is excellent news, in that it supplies an indication that the War Office authorities are alive to the fact that the aerial branch of

the Service is one of immediate and growing importance, even though it may still be open to doubt if the full realisation of its bearing on national defence has yet been reached.

Of the scope of the new department nothing has transpired, and necessarily much depends upon this. If the department is to be invested with individual responsibility for the efficiency of British military aviation to the extent that with it is to rest the determination of the annual programme which is necessary to meet the needs of the situation as it is modified from time to time, and is to be allowed practically unfettered discretion in the spending of the money allocated to the air service, then we can foresee that the Air Department is going to be an excellent and most useful institution. If, however, it is to act in a merely advisory capacity, with no executive powers save in the matter of command and co-operation with other branches of the service—to be on all fours with, for example, the Army Service Corps—then we do not see that it will have much bearing on the wider issues. Rather the reverse, as it should act as a further buffer toward off awkward questions. As the Secretary of State has not seen fit to enlighten Parliament and the country as to this most important aspect of the question, we are afraid we cannot at present become enthusiastic about it, however good the intention. There is a Spanish proverb to the effect that Hades is paved with good intentions, but what we want is aeroplanes, airships, and the men to fly them. A couple of hundred more aeroplanes, a fleet of a dozen Zeppelins, and pilots to navigate them, would be worth all the ornamental departments that were ever devised. However, we must suspend our final judgment until we know more about it.

Of one thing we are assured. That no better selection could have been made than that of Gen. Henderson as the head of the military air service. That he will do all that is possible with the money and *materiel* at his disposal we are absolutely certain, but what we fear is that his hands will be tied in many directions and particularly by the Treasury, which, for reasons best known to itself, appears to be extremely loath to provide money for aviation. If we could be assured that Gen. Henderson's advice was to be taken, and the military aviation grants placed under the direct control of himself and his staff, we could find it in our hearts to give the new scheme an unqualified welcome, but—. Well, as it is, we can only "wait and see."

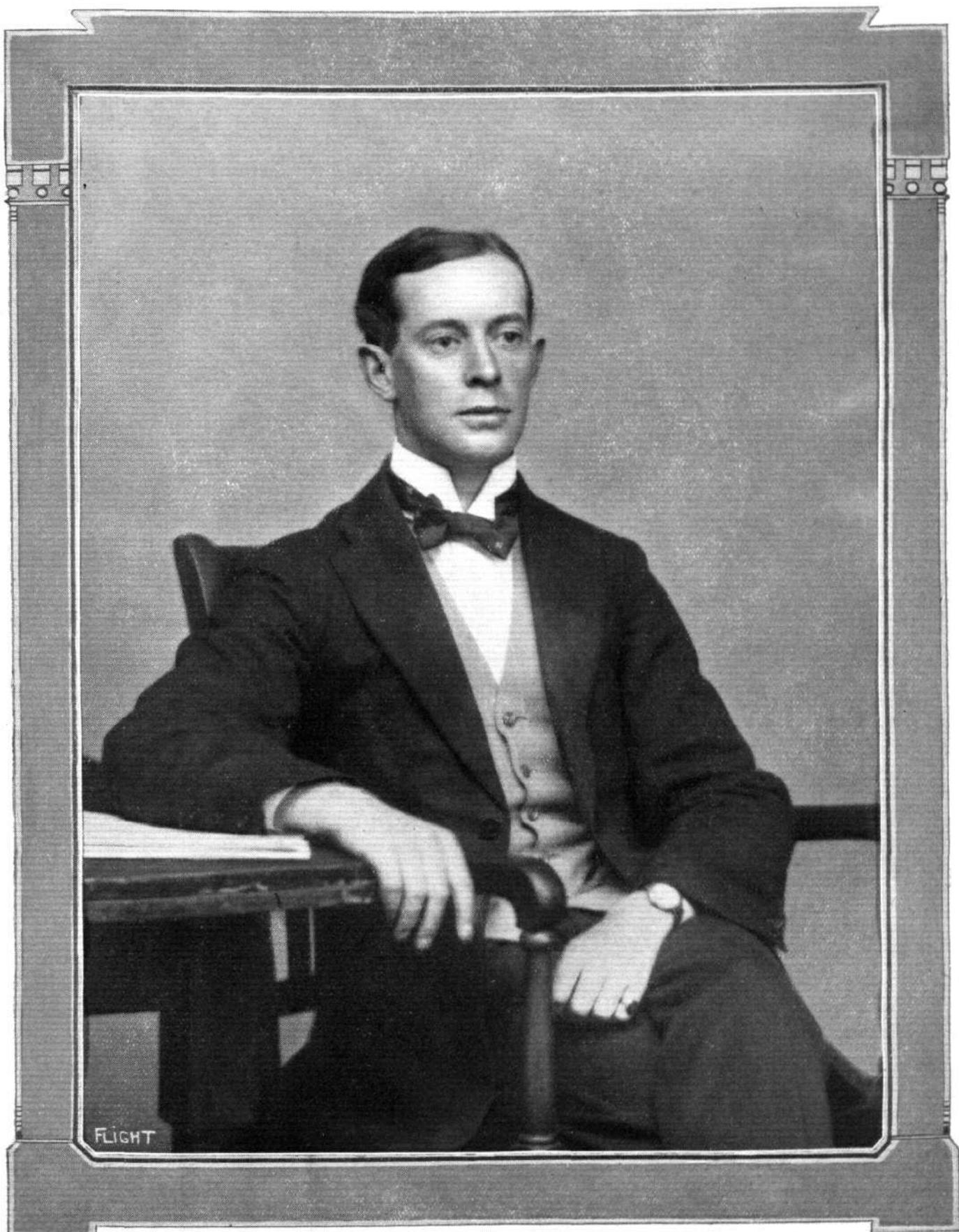


THE SIKORSKY AEROPLANE.—An all Russian machine, both design and construction.

JULY 26, 1913.

FLIGHT

MEN OF MOMENT IN THE WORLD OF FLIGHT.
Pilot-Instructors.



MR. COLLYNS P. PIZEY.

MR. COLLYNS P. PIZEY.

PILOT INSTRUCTOR.

MR. COLLYNS P. PIZEY, another of the Bristol pupils who have thought it well to remain with their old school on completion of the period of tuition, may justly be considered one of our senior pilots, as his certificate, No. 61, qualified for at Salisbury Plain, bears the same date, February 14th, 1911, as those of Mr. Gustav Hamel, Mr. W. H. Ewen, and Mr. A. Knight. As a pupil he showed remarkable aptitude, and the Bristol Co., ever with a keen eye for the best, immediately he secured his *brevet*, appointed him an assistant instructor at their school on Salisbury Plain. That this judgment was not at fault is indicated by the fact that Mr. Pizey is now the manager of the Bristol quarters at Lark Hill on Salisbury Plain.

His career as a pilot has not been without its exciting periods, and one of the first of these came within three months of his new appointment. Arrangements had been made to deliver, by way of the air, a new military biplane to Mr. O. Morison at Brighton, and late on a Thursday afternoon in May, 1911, Pizey started from the Plain for Brighton. He had not proceeded far, however, when a thunderstorm, which had been threatening for some time, broke in all its fury and provided Pizey with the most awe-inspiring quarter-hour of his life. Lightning played about the machine like tongues of flame, leading the pilot to speculate as to the possibility of the petrol tank catching fire; the thunder was simply deafening, while the rain was so dense that there was no sight of the earth. Pizey was out to try and deliver that machine, however, and he kept on his way until he found he was making practically no progress. Coming down very cautiously, he found himself a little to the east of

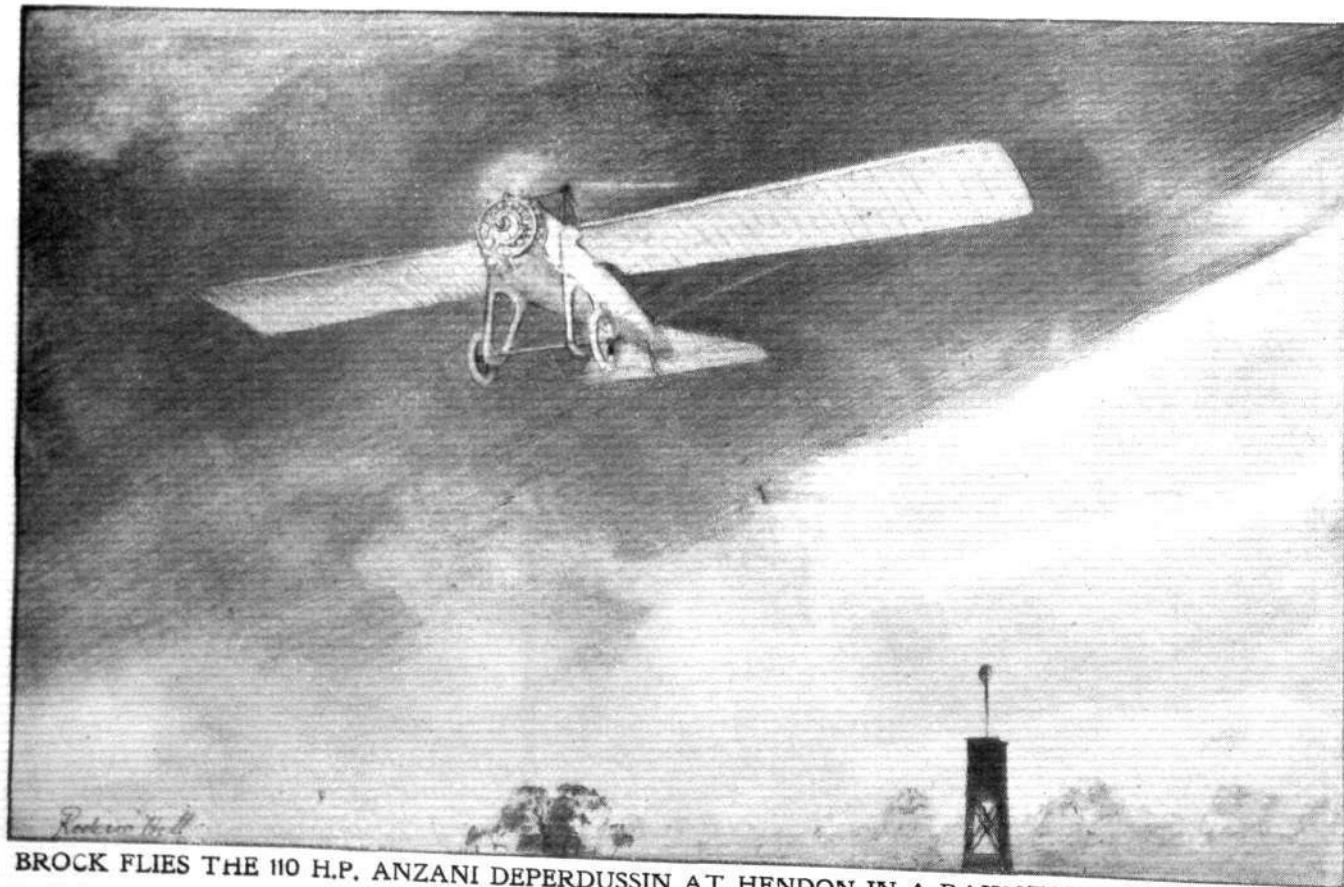
Portsmouth, and there decided to stay for the night. Pizey, however, says that this experience was not quite so uncanny as one which he encountered a little while ago, when, while flying at 1,200 ft. above the Plain, he suddenly realised that his machine was in flames. Again his nerves stood him in good stead, and he is still with us to tell the tale.

The subject of our portrait has not confined his activities to Salisbury Plain, and July of last year saw him in Turkey putting a batch of 70 h.p. Bristols through the rigorous tests demanded by the Turkish Government, these including a test flight from San Stefano to Constantinople, which had to be made at a minimum height of 7,200 ft. This task completed, Pizey returned to Lark Hill at the time the Military Aeroplane Competition was in progress, and although he did not take an active part in the contest, he put two 50 h.p. Bristol monoplanes purchased by the Italian Government through their official trials. At the end of August his services were required in Germany to teach half-a-dozen officers, and so expeditiously was this done that all had qualified for their *brevets* in three weeks. January this year saw him in Italy teaching Italian officers to fly the 80 h.p. monoplanes, and taking charge of the Italian Government school at Malpensa. Incidentally he passed several 80 h.p. and 50 h.p. Bristol military monoplanes through their reception tests, and on one of them flew in the Italian military aeroplane competition.

At the present moment he is back at Salisbury Plain, from whence he will no doubt soon be again called to take machines, in the interests of his company, to some other corner of the world.

"THE HAWK."

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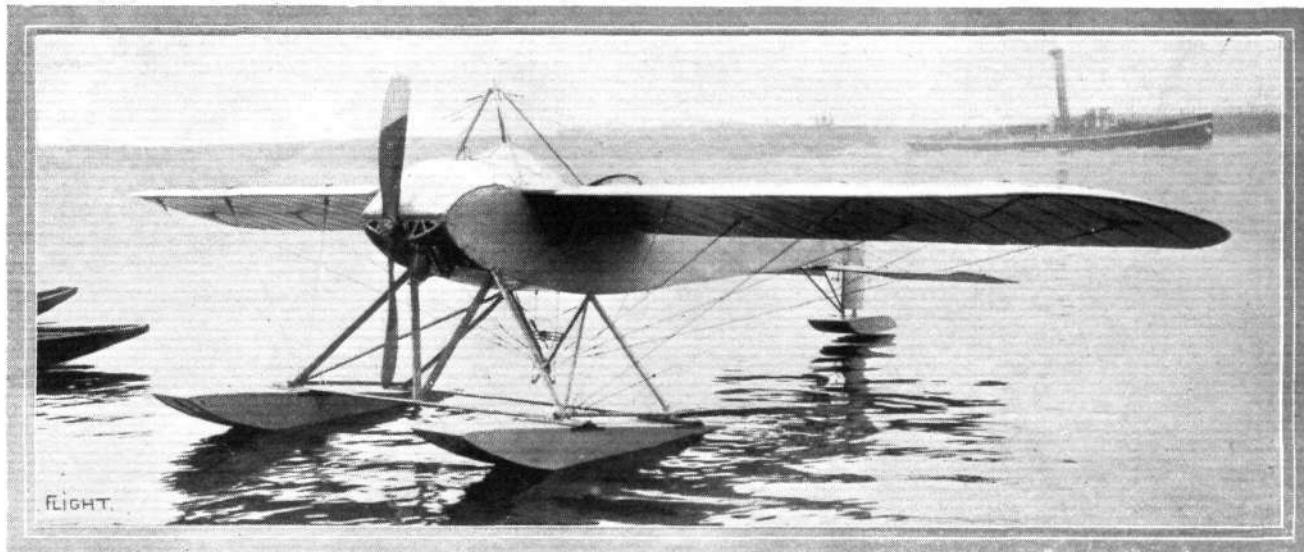


BROCK FLIES THE 110 H.P. ANZANI DEPERDUSSIN AT HENDON IN A RAINSTORM.—From an original drawing by Roderic Hill.

THE BOREL HYDRO-MONOPLANE.

IN this country the Borel monoplanes are comparatively little known, at any rate to the general public, as few of these machines have been seen here since Vedrines demonstrated the excellent qualities of his Borel monoplane in the Circuit of Britain two years ago. Since then the Borel machines have been vastly improved, until

One of the characteristics of this machine is the very wide *fuselage*, which affords ample room for the pilot and passenger. It is built up in the usual way, with four *longerons* connected by struts and cross members, and made rigid by means of diagonal cross wiring. At the rear the *fuselage* terminates in a vertical knife edge,

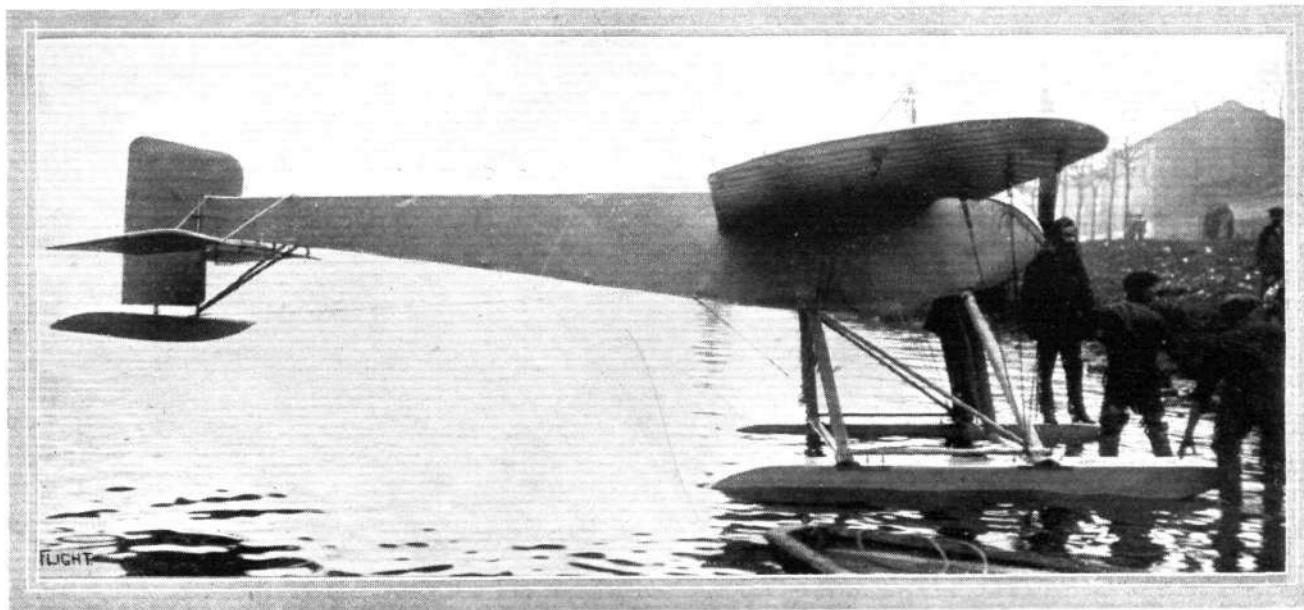


Three-quarter front view of the Borel Hydro-Monoplane showing main floats and chassis.

to-day they have built up a reputation which places them among the first of French monoplanes of the light, speedy type. It is not only in France, however, that their good qualities have been recognised, as the Italian Government has purchased a great number of the hydro-monoplanes, and the British Admiralty has recently placed an order for eight of these machines with Messrs. Delacombe and Maréchal, 166, Piccadilly, who hold the

formed by the rudder post. On this is pivoted the rudder, the upper part of which extends forward above the *fuselage*, thus effecting partially balancing of that organ.

Underneath the rear part of the *fuselage*, and secured to the lower and upper *longerons* by means of steel clips and tubes respectively, is a small fixed tail plane, which has a very pronounced camber. To the

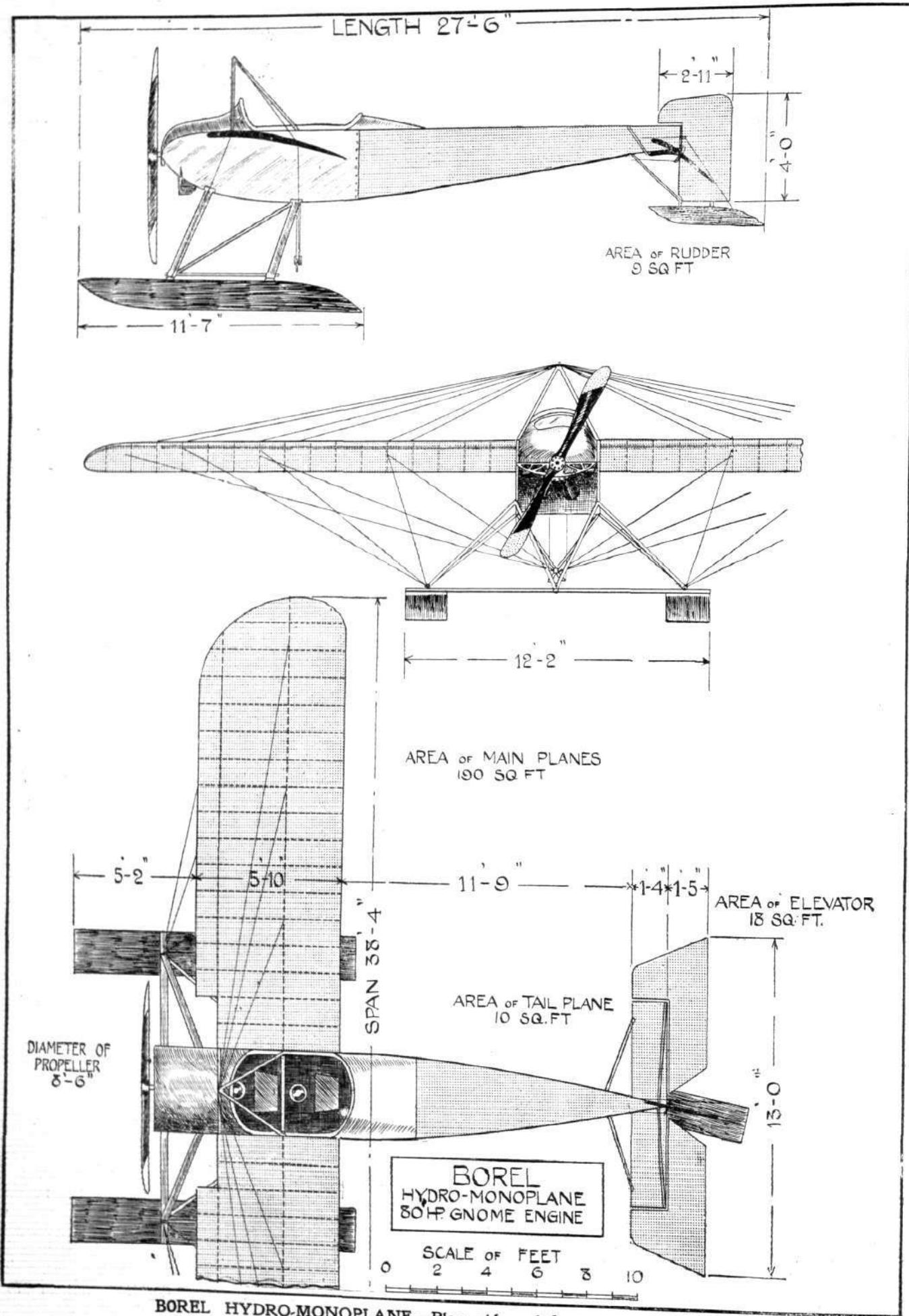


Side view of Borel Hydro-Monoplane.

sole rights for the sale and construction in Great Britain and Colonies.

Our drawings and photographs this week illustrate the hydro-monoplane, which is of exactly the same type as those bought by the Admiralty, and similar to the machine exhibited by the Borel firm at the last Aero Show at Olympia.

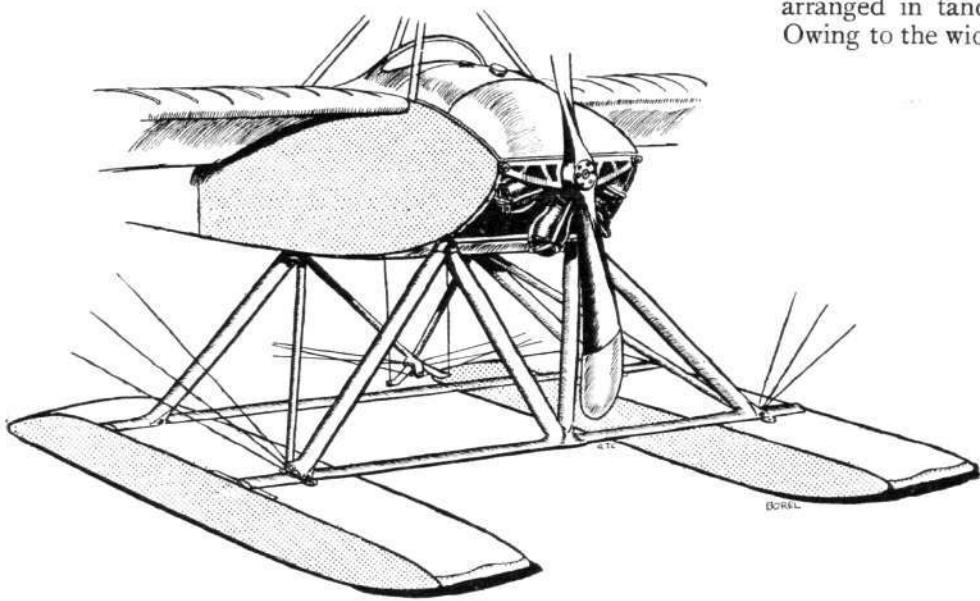
trailing edge of this tail plane is hinged, by means of a steel tube, the elevator, which is, similarly to the rudder, provided with extensions running forward at the ends of the tail plane, so that they are at least partly balanced. It will thus be seen that very little effort is needed on the part of the pilot to operate the controlling surfaces, which fact, in connection with the small depth—about one foot



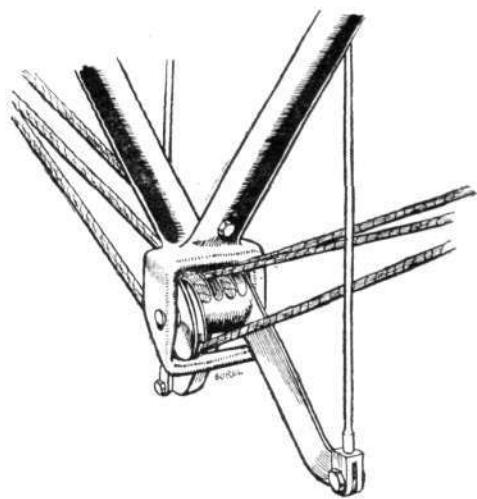
BOREL HYDRO-MONOPLANE.—Plan, side and front elevations to scale.

—of the *fuselage* at the rear makes the machine very easy to handle.

From the side view of the machine it will be seen that the upper and lower *longerons* converge fairly abruptly



Sketch showing the two main floats, the chassis and the engine mounting of the Borel hydro-monoplane.



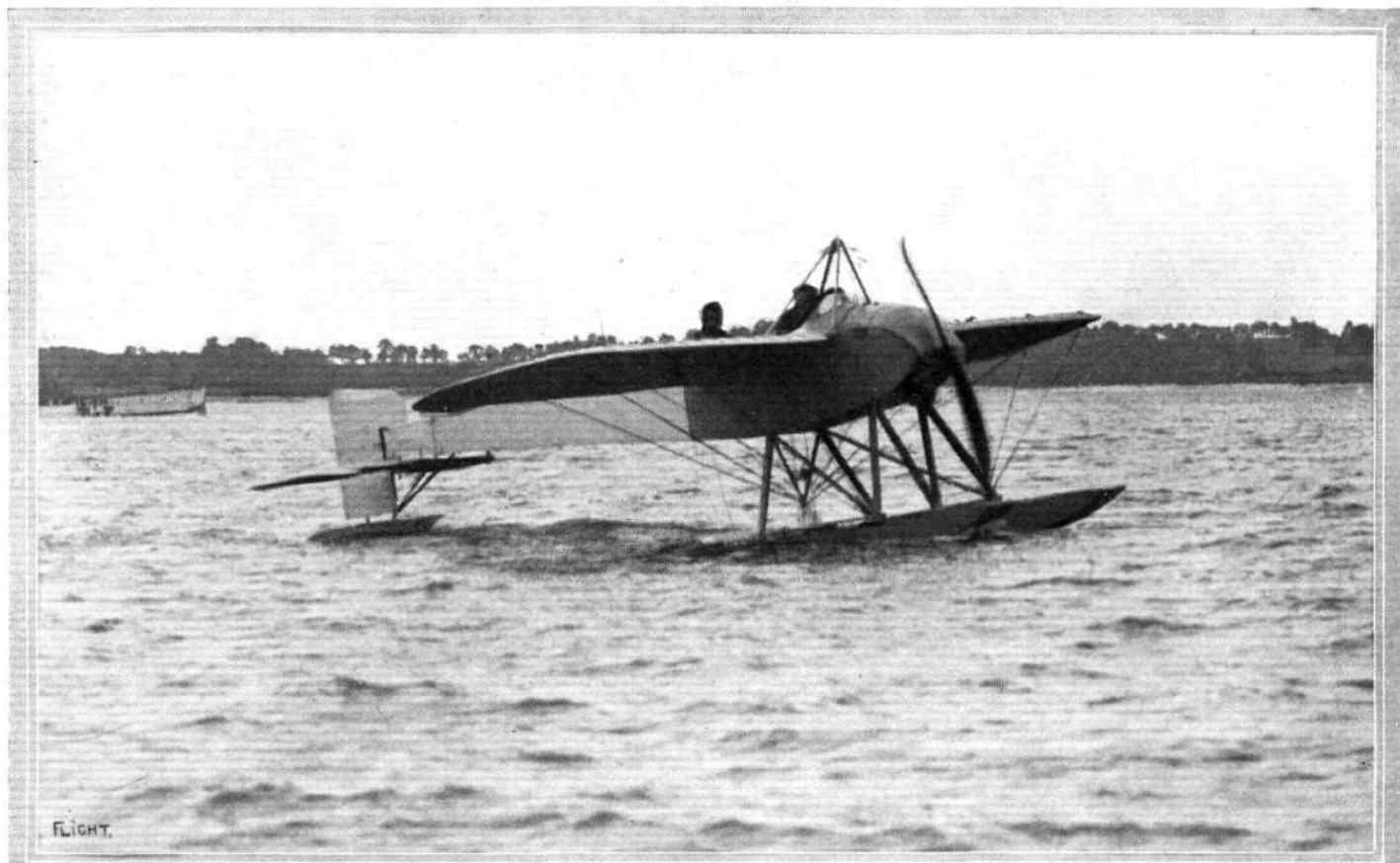
The lower pylon of the Borel hydro-monoplane, showing warping gear.

towards the front, until they nearly meet in the nose of the machine, thus giving a very good streamline form to the *fuselage*.

Mounted on channel-steel bearers is the engine, an 80 h.p. Gnome. The front bearer is easily detachable in order to facilitate access to the engine. An aluminium cowl prevents any oil being blown back into the pilot's

room in the cockpit ; in fact, it is one of the most roomy we have seen, and reminds one more of a motor car than of a flying machine.

In front of the pilot is a very neat dashboard with all the instruments desirable for cross-country flying. The machine is controlled by an arrangement similar to that on the Blériot monoplane, except that no actual "cloche"



THE ADMIRALTY'S BOREL HYDRO-MONO. No. 83.—Gordon Bell in pilot's seat (back), with Lieut. Travers as passenger, after passing reception tests at Calshot.

is fitted. Dual control is provided, so that during a long flight the passenger may relieve the pilot.

An inspection of the plan view of the machine will show that the trailing edge is considerably longer than the leading edge consistent with the usual Borel practice. This has the advantage, amongst other things, of giving an increased efficiency to the warp, a plan form which was, we believe, originated by the Borel firm. A very interesting point in connection with the wing bracing is the exceptionally good angle of the lower lift wires, obtained by securing them to the lower extremities of the chassis members where these join the floats, which are spaced very widely apart. From the front view of the machine it will be seen that the inner lift cables are nearly vertical, while the outer ones have a corresponding good angle.

One of the accompanying sketches shows the chassis and main floats. The former structure consists of a system of steel tubes, flattened out to obtain a streamline section. The chassis down-corner struts are connected by two horizontal cross members, to the ends of which are attached the two main floats. These are built of



The Flight of the Beetle.

MR. WALTER CRICK writing to the *Morning Post* makes the following interesting observation on the flight of beetles :—

A comparison which I think is often overlooked, is the very striking resemblance between the flight of the great stag beetle (*Lecanu cervus*) and that of the aeroplane. When flying the insect stretches out its elytra, or wing cases, for all the world like the extended wings of an aeroplane, and these remain rigid while it is in the air. The progressive movement is given by the membranous wings, which, like the propeller, are moved with extraordinary rapidity, and with a peculiar buzzing sound which much resembles the distant "hum" of a motor when the engine is running well. I have also noticed that this very interesting beetle always ascends and descends in circling curves, and it "banks" its flying apparatus with wonderful precision for the purpose of alighting on any particular spot. To this may be added what I believe to be the fact, namely, that the angle of flight which *Lecanu cervus* always maintains when

wood, capped at the nose and heel with brass. It will be seen that they are of the catamaran or punt type, without a step. As has been said before, the floats are

spaced very widely apart, thus affording a very wide "track," and consequently rendering the machine very stable on the water. A tail float of similar con-

The tail float of the Borel hydro-monoplane, which is rigidly connected to the rudder and moves with it, thus acting as a water rudder when the machine is "taxying."

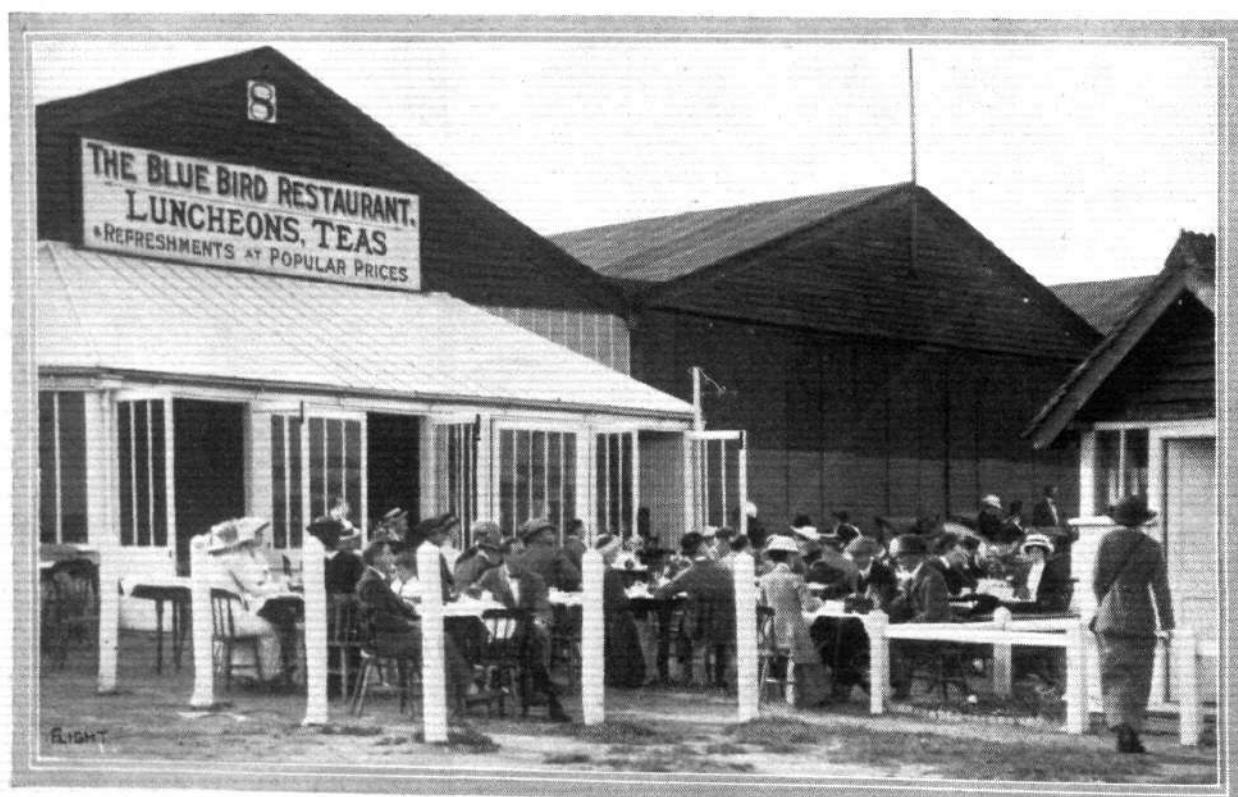
struction to the main floats is attached directly to the rudder, and turns with it so that the machine may be steered with considerable accuracy when "taxying" on the water at slow speeds.



on the wing closely approaches the ordinary inclination of an aeroplane as it travels through the air. I venture therefore to submit that "the poor beetle that we tread upon" suggests even more vividly and directly than the birds of the air the mechanical solution of the problem of human flight.

An American Aerotechnical Laboratory.

AT the request of the President of the Massachusetts Institute of Technology, the U.S. Naval Minister has detailed Assistant Naval Constructor J. C. Hunsaker, who it will be remembered has translated Eiffel's book into English, for work at the institute in developing courses in aerodynamics. Mr. Hunsaker is to visit Europe and obtain full particulars of the National Physical Laboratory in England and the various laboratories in France and Germany, and will draw up a plan for organising a laboratory in connection with the institute at Boston where aerodynamical work is being carried on at present.



BROOKLANDS SUNDAY FLYING.—At the sign of the Bluebird at the hour for afternoon tea.

WHY PILOTS SHOULD USE THE "STRING."

THOSE who have watched Beatty evolving at Hendon on the Wright biplane with the Gyro engine have probably provided themselves with a variety of reasons to account for the nonchalance with which this American pilot justifies his countrymen's contention that he is "some banker."

Some may say—to the obvious benefit of the Company whose representatives have adopted this very practical method of calling attention to the Gyro engine—that it is all due to the motor, which probably develops about three times as much power as the machine requires for the purposes of straightforward flight. Others, with commendable respect for the genius of the greatest, no less than the first, of the pioneers, may say that it is all in the Wright biplane. Others again may give Beatty himself some little credit for the performance—or frankly fear that he is on his way to "collect it," according to their point of view.

But very few, probably, have given any credit to the little piece of string that Beatty, in common with all Wright pilots, carries on the crossbar between the blinkers of his machine.

We honestly believe that if "the string" were as universally employed as it should be by pilots that it would do more, in proportion to its intrinsic value, for the safety of flying than any other thing that it is possible to conceive.

Wright pilots invariably use "the string." No matter how experienced they may become, they still continue to use it.

Mr. Alec Ogilvie, the most accomplished of Wright pilots in England, uses it on his machine at East-church. Mr. Beatty is using it at Hendon, and it is the secret of the nonchalance with which he performs his banks.

The purpose of the string is to act as a warning of sideslip. So long as the string flies out good and straight parallel to the blinkers on his machine, Beatty knows that he has an axial relative wind. He is certain, in short, that his machine is not sideslipping either inwards or outwards.

So long as he keeps the string parallel with the blinkers he cannot overbank. No matter how much he may appear to be overbanking, the fact remains that he is safe so long as the string tells him that he is so. Were he to overbank, his machine would immediately sideslip like any other machine; and the relative wind, in coming obliquely across the machine in consequence, would blow the string sideways.

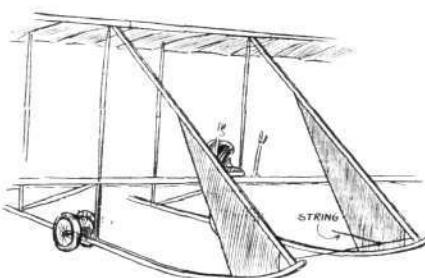
Now the pilot who has no string as a guide has to rely solely on his own discretion, which is the slow product of experience grafted upon a personal sensitiveness that characterises different people in varying degree. As a rule, the majority of pilots underbank when turning, that is to say they sideslip outwards more or less. As far as is known, there is no particular danger about side-

slipping outwards and so the majority of pilots are on the safe side in thus manœuvring.

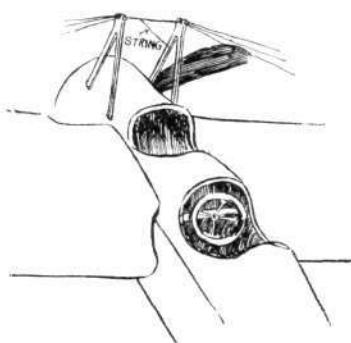
"Flying is a game of cards at which you only have one deal," as a pilot of great experience, and equal caution expressed it to us recently, and a man who overbanks his machine once may not have the opportunity of profiting by his experience. It is, therefore, something to be avoided, and so only those who have built up a very considerable confidence are ordinarily to be seen performing banked turns anywhere approaching the limit of what is possible and also safe. For the inexperienced to do what Beatty does without the guidance of the string would be to court disaster, notwithstanding all that may be said in favour of the Gyro engine and of the Wright machine. Nevertheless, we feel equally firmly convinced that by the guidance of the string any thoroughly qualified pilot might with comparative safety quickly learn to achieve what Beatty performs so easily and so well.

Let it, of course, always be understood that a banked turn of any description tilts the wing pressure at an angle, and so deprives the aeroplane of a part of its support. Unless, therefore, the engine has a great deal of surplus power that can be brought into use at this moment the machine must descend while turning.

The string gives instant warning of this.



Sketches illustrating the position of the string as used on the Wright biplane, and as it can be used on a tractor monoplane. A piece of worsted about 12 ins. in length will serve the purpose.



If the reserve power is sufficient to enable the machine to continue turning on its own level it suffices to bank the machine while flying horizontally and without previously tilting its nose down. But, on any machine that is not thus adequately engined, it is essential to put the machine into a descending attitude before the bank is commenced.

If a piece of paper such as a foolscap envelope be held in the hand so as to represent the wings of an aeroplane in flight, the difference between banking first and dipping with the elevator afterwards, compared with dipping first and banking afterwards, is self-evident at a glance.

If it is one's object to avoid sideslip in flying—and there can be no question that this is the safer principle of progress—then one's object in control must be always so to manœuvre the machine that it tends naturally to follow an axial path through the relative wind. Having accepted this idea as a guiding principle, the point of immediate importance is to have a reliable indicator, which, if one accepts the evidence of the Wrights and all their pupils, is already available in "the string."

Hitherto, we have not discussed the string and its possibilities for fear of leading astray those who might be flying other types of machines, notably of course those with a tractor screw. Quite recently, however, we have been informed by Eng. Lieut. E. F. Briggs, R.N., of the Naval Wing of the R.F.C., that he has tried the string on a tractor monoplane and that it seems to answer its purpose thoroughly. If this is so then we most strongly advise all other pilots to start using the string and to find out for themselves whether or no it does not tend to

inspire them with increased confidence. When such experienced pilots as Mr. Alec Ogilvie and Mr. Beatty are not ashamed to be seen with it on their machines, no one else need presume to suggest that it appertains to the days of "the apron."

Besides the string, one thing else is needed materially to increase the safety of flying, and we never cease to be amazed that so many pilots continue to fly without it.

We refer, of course, to the air speed indicator, which tells the pilot his velocity through the relative wind. Flying takes place in the atmosphere, the motion relative to the ground is incidental and of no consequence to the aerodynamic principles involved. Every machine has a proper flying speed at which it will fly horizontally in the attitude for which it was designed. The range of speeds above and below the normal are acquired by tilting the machine out of its proper attitude under the influence of the continuous action of the elevator.

Experienced pilots with a good ear for their engine, generally know more or less when they are flying at the proper speed under power, but there are a good many who do not know all the same, and even the experienced pilots are very often at a loss to judge the proper speed while gliding.

Just as the majority of pilots underbank at the turn, so do they come down over steeply in the descent. If they worked by the air speed meter they could descend by a glide with the same precision that they fly horizontally. Also, they would be able repeatedly to make their climbs under the best conditions, because having once determined by experiment the speed at which the particular machine was able to climb most rapidly, they would in future

merely pull away at the elevator until the machine was brought down to that speed, and under those conditions they would continue to climb as long as they desired.

Air speed meters are already on the market, and there is no excuse whatever for not fitting them. The pilots of the Royal Aircraft Factory carry out all their experimental flying by the aid of an air speed meter and they would never think seriously of flying a machine without one. The instrument in question which was designed at the R.A.F.—but which is not therefore necessarily useless, in spite of popular prejudice against factory products—is manufactured and sold by the well-known instrument makers, Messrs. Elliott Bros.

Another form of air speed meter is the Eteve, for which the Aircraft Manufacturing Company hold the English rights. In fitting it, one flies one's machine horizontally at its normal speed and notes the position of the indicator. On alighting, the instrument is adjusted until the red mark on the scale is coincident with the position occupied by the needle in flight. Whenever the machine is going through the air at the speed that it was flown during the preliminary tests, the needle will stand on the red mark. Whenever the machine increases its speed the needle will move in one direction, and whenever it decreases its speed it will move in the other direction.

It does not matter whether the pilot is gliding or flying straight, he is always able to tell at a glance whether he has his proper air speed or not. In short, the air speed meter gives him, just as the string gives him, a ready-made knowledge that he might not satisfactorily acquire during a whole lifetime as a pilot.



Mr. Gustav Hamel just about to start for a flight with Miss Teddie Gerrard, of the Hippodrome, at Brooklands on Sunday last. Mr. Hamel climbed to nearly 9,000 ft., and in descending stopped his propeller at 6,000 ft.



**The Royal Aero Club
of the United Kingdom**

OFFICIAL NOTICES TO MEMBERS

Hydro-Aeroplane Race at Cowes.

SIR THOMAS LIPTON has kindly presented to the Royal Aero Club a trophy of the value of one hundred guineas to be raced for at Cowes, on the Wednesday of Cowes week, viz.:—August 6th, 1913. The Royal Yacht Squadron, who have been communicated with on the matter, have suggested that the race should start after 4 p.m., by which time the Yacht Racing for the day would probably be over, thus allowing a large number of spectators to view the race.

The race will be open to Hydro-aeroplanes, and will be over a course of about 60 miles in the vicinity of Cowes.

The race will be flown on handicap, and entries must be sent to the Royal Aero Club on or before Saturday, August 2nd, 1913, accompanied by an Entrance Fee of one guinea.

Daily Mail £5,000 Prize: Circuit of Great Britain.

The Contest for the *Daily Mail* £5,000 Prize will start from Southampton Water on Saturday, August 16th, 1913.

The following entries have so far been received:—

1. T. O. M. Sopwith	3. James Radley
2. S. F. Cody	4. F. K. McClean

Late entries can be made up to August 1st, 1913.

The Royal Motor Yacht Club has kindly promised to extend Honorary Membership of their Club to all Members of the Royal Aero Club for that day. The Headquarters of the Royal Motor Yacht Club is the "Enchantress," which is moored in Southampton Water off Netley Hospital. It is proposed to start the race in close proximity to the "Enchantress."

Members desirous of witnessing the start from the "Enchantress" are requested to communicate with the Secretary of the Royal Aero Club. It is hoped in the next issue to deal more fully with these arrangements.

Competitions Committee.

A meeting of the Competitions Committee was held on Monday, the 21st inst., when there were present: Col. H. C. L. Holden, C.B.,

THE NAVY AND AVIATION.

IN the course of the debate on the Navy Estimates in the House of Commons on Thursday of last week, Mr. A. Lee said that in the speech of the First Lord of the Admiralty, which was largely taken up with the question of the use of oil fuel, the subject of air defence was not touched on at all. That must be, he thought, largely because the right hon. gentleman recognised how unsatisfactory the position was. He did not know that the First Lord was altogether to blame. No doubt the right hon. gentleman was doing what he could. But the neglect of the Admiralty in the past of this great problem was unaccountable. He hoped the right hon. gentlemen would decide soon what aircraft were to be called. He would suggest that a Navy aeroplane might be called an airboat and a dirigible an airship.

Mr. Churchill said they had decided to call naval hydro-aeroplanes seaplanes and the ordinary school-machine, the ordinary aeroplanes which they used, simply planes.

Mr. Lee: The right hon. gentleman had promised 75 seaplanes and 75 pilots for the naval manoeuvres in July. Had he got them?

Mr. Churchill stated that he had the pilots, but that some of the machines had been delayed in delivery.

Mr. Lee wished to know whether a really adequate supply of seaplanes were taking part in the naval manoeuvres, and he hoped that progress was being made with the chain of seaplane stations round the coast. The airship harbours were, however, much more important, and would cost very much more. The Admiralty should look ahead and make these airship harbours sufficiently large. In the provision of airships lamentably slow progress has been made. He was unwilling to believe that the reason for this which was given by the First Lord in March was the real reason, because it was so contrary to the spirit of the British Navy that an enterprise should be abandoned for two years in consequence of a single accident such as occurred in the case of the "Mayfly." He thought the real reason was the innate conservatism of the naval mind. At any rate, we had got to get on. These early failures and mistakes were inevitable. The right hon. gentleman had told them that it was only in the last twelve months that the Germans had begun to benefit from their many years of experiment. That was all the more reason why we should start ploughing the same long furrow

F.R.S., in the Chair, Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Mr. G. B. Cockburn, Mr. Alec Ogilvie, and the Secretary.

Gordon-Bennett Aviation Race, 1914.—The question of the minimum speed for this Contest was considered, and Mr. Griffith Brewer was authorised to lay the views of the Club before the Sub-Committee meeting in Paris on the 23rd inst.

Daily Mail £5,000 Prize: Circuit of Great Britain.—The Secretary reported that the Admiralty had kindly offered the Club the use of their sheds at the Naval Air Station at Calshot Castle for the competing machines in this race. It was decided to accept this offer, and a unanimous vote of thanks was passed to the Admiralty for this generous assistance. Mr. G. B. Cockburn and Mr. Perrin were appointed to visit Southampton on Wednesday, the 23rd inst., with the officials of the Admiralty, to go into the necessary details.

The question of the other Controls was also considered.

Public Safety and Accidents Investigation Committee.

A meeting of the Public Safety and Accidents Investigation Committee was held on Monday, the 21st inst., at 8.30 p.m., at the Royal Automobile Club (by kind permission), when there were present:—Col. H. C. L. Holden, C.B., F.R.S., in the Chair, Mr. A. E. Berriman, Eng. Lieut. E. F. Briggs, R.N., Mr. G. B. Cockburn, Mr. F. K. McClean, Mr. W. O. Manning, Mr. Alec Ogilvie, Mr. Mervyn O'Gorman, C.B., Major General R. M. Ruck, C.B., R.E., and the Secretary.

Salisbury Plain Accident.—The Committee proceeded to enquire into the fatal accident to Major A. W. Hewetson, on a Bristol Monoplane, at Lark Hill, Salisbury Plain, on the 17th inst. The report of the Club's representatives, who were on the spot within a few hours of the occurrence, was received. This report included the evidence of eye-witnesses. The report of the Committee was drafted and ordered to be submitted to the Executive Committee at its meeting on the 29th inst.

166, Piccadilly, W. HAROLD E. PERRIN, Secretary.

without delay. The right hon. gentleman has stated that we were to have long range airships of the largest type, but so far as they knew he had only proposed to import two foreign specimens for trial. The creation of an air fleet was one of the most urgent and vital needs of the Navy. He wished that the present naval manoeuvres were a test of what would happen in war if the "Blue" fleet was unprovided with aircraft while the "Red" fleet had a proper complement of such craft. If such a test were carried out lessons would be learned which would bring home the necessity of providing adequate equipment in this respect. In regard to the questions of oil and air, the charge which could be brought against the board of Admiralty was that they had shown lack of foresight in not dealing with the matter early enough.

Mr. Ramsay Macdonald: A good deal had been said about aircraft. On March 29th, 1912, a certain British airship building company issued a prospectus which said that the requirements of the British Empire ought to be much greater than those of other countries, and that it was estimated that within two years at least a thousand machines of all types would be required. What happened? Shareholders invested on the strength of these promises, and within the next year or two if the ships were not required pressure would be brought to bear from one side of the House or the other, and explanations would be demanded. It was no longer a question of strategy, of Imperial need, or of necessity. It was a question of profit on the part of thousands of disappointed people. The Chairman of the firm, Admiral Sir E. R. Fremantle, patron of the Aerial League of the British Empire, and a member of the expert Advisory Committee of the Navy League, seconded a resolution at the annual meeting of the Navy League, declaring that the League should insist on immediate steps being taken by the Government in all conditions, and at any cost, to make adequate preparations for aerial defence.

Mr. J. Pretyman said the First Lord must know that there was great and justifiable anxiety in the country as to the position which we now occupied in regard to aerial defence. We were considerably more behind in the matter of aerial equipment than we ever were in the matter of submarines. The vital question was not so much the actual possession of machines as of practised crews to man them.

We could not get accurate information in regard to this new science from other countries. We had to work it out for ourselves. Unless we, as a country, experimented and trained our men in the use of aircraft, and developed a knowledge of their use and of what we had to fear and hope from these machines, we should run the gravest danger in the time of war. At present we had a very indifferent supply of any of these machines, and, as far as airships were concerned, whether rigid or non-rigid, he believed we were merely on the threshold, whereas other countries were very far advanced. He thought that the First Lord should have reassured the Committee with regard to this matter. We could no more afford to be behind in the possession of efficient forms of aircraft than we could in battleships.

In replying to the debate Mr. Winston Churchill said the Admiralty were making considerable progress in regard to the development of the Naval Air Service. The cruiser "Hermes" had been fitted with a launching platform and accommodation for three seaplanes, and had gone out to the manoeuvres. There were several shore stations which would be in action in connection

with the manoeuvres. The Admiralty had not the number of seaplanes which they had hoped to have owing to the delay in delivery. They had, however, a considerable number, but he would rather not say how many. As to airships, the "Parseval" had gone through a trial at 42 miles an hour, and had been accepted. The other airship purchased was being altered. With a view to carrying out their policy to develop large rigid airships, the Admiralty had entered into negotiations with one or two of our largest and most experienced shipbuilding firms. The preliminary steps in connection with the construction of two rigid airships of the largest size were now well advanced.

They proposed to build six non-rigid airships of medium size to be used for training the personnel in handling the large airship. They had great hopes of being able to build vessels which in every respect would be equal to those now constructed on the Continent. Accommodation was being provided on the Medway air station for several airships. In this branch of naval air service further extension was to be expected, and soon other air stations would become necessary. Steps were already being taken in that direction.



AIRSHIP NEWS.

2½-Hour Trip by Naval Parseval.

WITH Lieut. Boothby in command, with a crew of nine on board, the new Parseval airship of the Naval Wing of the Royal Flying Corps made a trip from Farnborough to Cowes, Isle of Wight, and back, a distance of about 100 miles in 2½ hours on Monday.

19½-Hour Voyage by a Zeppelin.

ON Saturday morning the latest Zeppelin at present designated LZ 20, arrived back at Frankfort-on-Main at the conclusion of a trip which had lasted 19½ hours. Rain fell during a greater part of the time the vessel was in the air, while a 45-mile an hour wind had to be negotiated during the last stages.

Nine-Hour Cruise by "Z 4."

THE military Zeppelin "Z4," stationed at Cologne, on Saturday night made a reconnaissance of nine hours' duration over the Hartz mountains and the cities of Brunswick and Hanover.

Metz Airship Station to be Moved.

FOLLOWING on the landing of the Zeppelin cruiser at Luneville some time ago the German military authorities have decided to shift the airship station at Metz to a point further away from the frontier. This decision, which has been taken against the advice of Count Zeppelin, was largely influenced by the fact that the French Army has a number of very active escadrilles of aeroplanes at work between Toul and Belfort on the frontier.

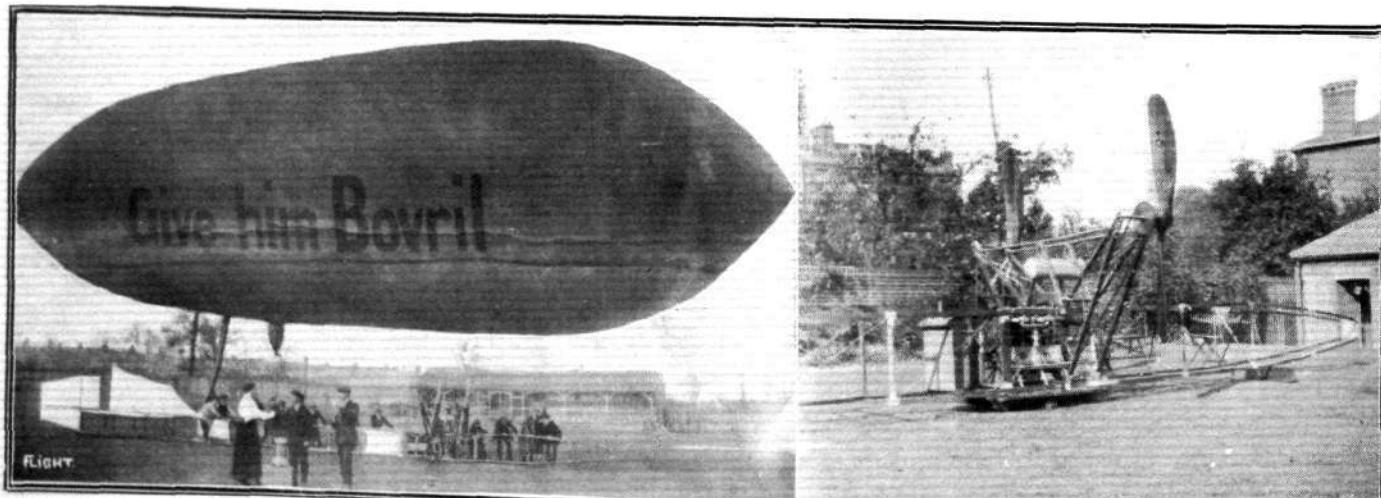
Passengers on Zeppelin Liners.

A REPORT on the three years working up to June last, of the German company which owns the passenger Zeppelins shows that in 826 cruises, aggregating 1,835 hours, 17,221 passengers were carried some 64,172 miles. The "Victoria Louise"

made 285 trips and carried 5,953 passengers while the ill-fated "Schwaben" made 230 voyages with 4,622 passengers and the new vessel "Hansa" 188 trips with 4,007 passengers. In 58 ascents, the latest liner "Sachsen" has carried 1,336 passengers. The records of the previous vessels were: "Deutschland" 7 trips, 142 passengers; "LZ6" 34 trips, 726 passengers; "Ersatz Deutschland" 24 trips, 436 passengers. Yet the three years working of the company has resulted in a loss of £62,100.

The Wreck of the "Schutte-Lanz."

SOMEWHAT reminiscent of the fate of the French dirigible "Patrie" was the disaster which overtook the "Schutte-Lanz" airship, belonging to the German army, while on a long-distance voyage from Berlin to Konigsberg and back. Berlin was left on Sunday week and Konigsberg was reached all well. On the return journey on the following Tuesday, however, it was decided to make a stop at Schneidemuhl in order to replenish the hydrogen gas. Supplies were telegraphed for, and although they arrived the next day it was not until the Thursday that the work of re-inflating could be proceeded with. As there is no airship shed at Schneidemuhl, the "Schutte Lanz" had to be anchored in the open, and 250 soldiers were detailed to guard it and hold it down. They were, however, surprised on Thursday morning by a squall which tore the mooring ropes from their hands. Two of the soldiers were carried aloft, one of whom fell from a height of about 30 ft. and was very severely injured, while the other, who dropped when the airship was 600 ft. up, was instantly killed. For some time the airship hovered over the ground, and then, owing to the gas escaping, it came down and settled on a clump of trees. The wooden framework was broken in three places, and then collapsed. The "Schutte-Lanz" was 430 ft. long, and was fitted with two 250 h.p. Mercedes motors.



The "Bovril" All British airship which made a successful ascent on July 5th from the Old Welsh Harp, Hendon, piloted by Mr. Henry Spencer, of Spencer Bros., Ltd., Highbury. This little dirigible is entirely British built and is propelled by a 40-50 h.p. Green engine, it being used for advertisement purposes throughout the country. In the foreground are Mr. Henry Spencer and Mr. Dagnall, late assistant engineer. On the right is seen a closer view of the framework, car, engine, &c.

WATERPLANES ON LAKE CONSTANCE.

THE race for the Lake Constance Prize was flown over a four-sided course, with start and finish at Constance. The conditions included : Start from Constance, flying over controls at Romanshorn, Arbon, Bregenz, and alighting on the water at Lindau. Here the aviators had to stop the engine, restart it, and, rising from the lake, fly back to Constance. A second round of the controls mentioned above had

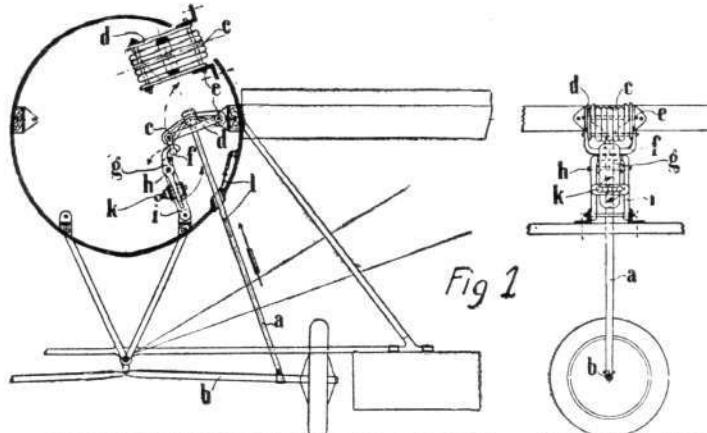


Fig. 1

carries at the top a short crosspiece, on which rest the rubber shock absorbers, *c*. The frame, *d*, in which these are held, is pivoted at one end, *e*, whilst the other end is held in place by the hook, *g*. This, in turn, is secured in a position parallel to its frame by means of the latch, *k*. By turning the latch, *k*, the hook is brought out of engagement with the shackle, *l*, and the frame, *d*, may now be

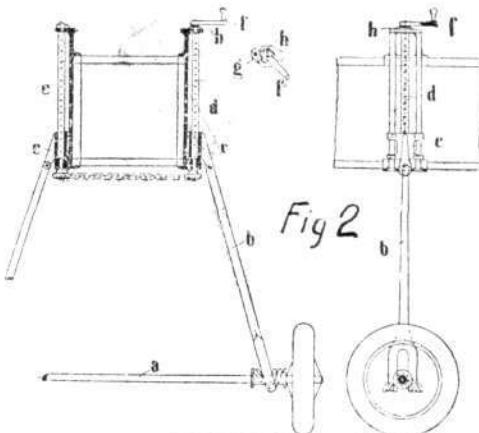


Fig. 2

swung upwards, thus allowing the strut, *a*, and with it the axle and the wheel to be lifted out of the water. The strut is prevented from sliding down by means of the pin, *l*.

The method of raising the wheels on the *Albatros biplane* is shown in Fig. 2. The strut, *b*, is forked at its lower end to accommodate the wheel-axle, *a*. At its upper end, the strut is hinged to

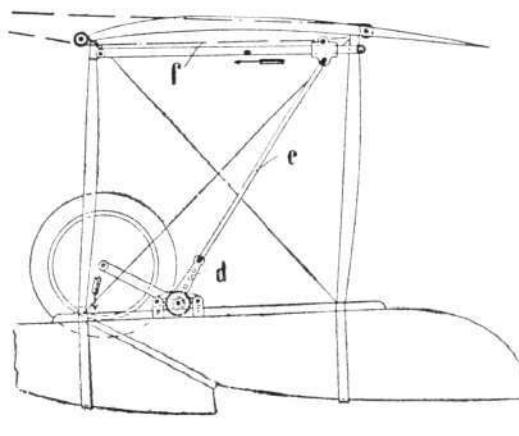
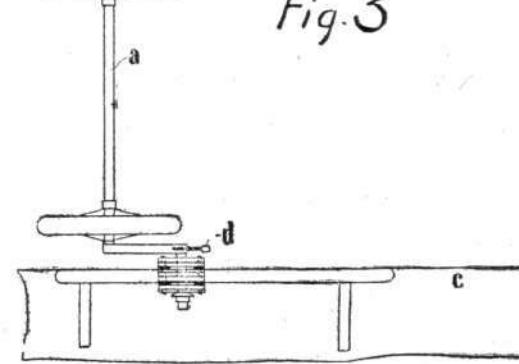
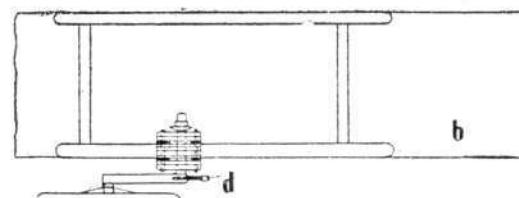


Fig. 3



the guide piece, *c*, which is internally threaded to take the worm-shaft, *d*. By rotating the crank, *f*, the guide piece, and with it the strut and wheel, is raised. A pawl and ratchet arrangement is introduced, to prevent the wheel from dropping down again.

Fig. 3 shows how the wheels are raised on the *Gotha biplane*. The axle, which is sprung from the float by means of rubber shock

to be made, and the competitors finished at Constance. The distance is 200 kils., and the winner was the aviator who completed the course in the shortest time.

The conditions to be fulfilled in the starting and alighting competitions included starting from land, alighting on the lake, restarting from the lake and reaching a minimum altitude of 200 metres.

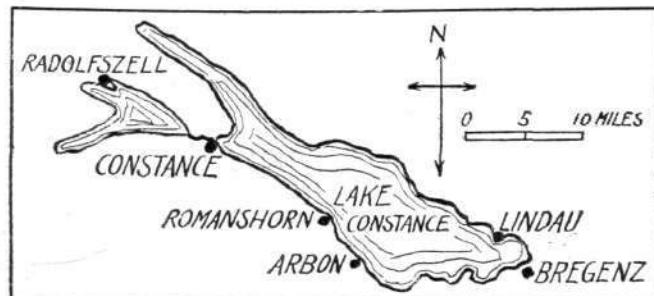
The amateur race was flown over a course starting from Constance, thence to Romanshorn and Radolfszell. At the latter place the aviators had to alight on, and restart from, the water and fly back to Constance. The distance was 84 kiloms.

The winner of the climbing tests was the aviator who reached a minimum altitude of 500 metres in the shortest time.

In the accompanying table we give a list of the competing machines :—

Make of Machine.	Type.	Engine Position.	Make of Engine.	h.p.	No. of Main Floats.
Aviatik-Pfeil	Biplane	In front	Argus	120	2
Aviatik	"	Behind	"	100	1
Flugzeugbau Fried-	Monoplane	In front	"	70	2
richshafen	Biplane	Behind	N.A.G.	140	1
Albatros	Monoplane	In front	Mercedes	75	2
"	Biplane	"	"	100	2
"	Monoplane	"	"	100	2
Ago	Biplane	Behind	Argus	120	2
Strack	Monoplane	In front	Hilz	55	2
Gotha	Biplane	Behind	Mercedes	100	2
Otto	"	"	Argus	100	2

As the conditions included starting from land and alighting on and starting from the water, all the competing machines were necessarily of the amphibious type, that is to say they were fitted with



combination float and wheel chassis. Some of the devices employed for raising the wheels clear of the water, when the machine was resting on that element, were very ingenious, and we give brief descriptions of some of the most interesting designs, for which we are indebted to *Flugsport*.

Fig. 1 shows the chassis of the *Albatros monoplane*. The strut, *a*,

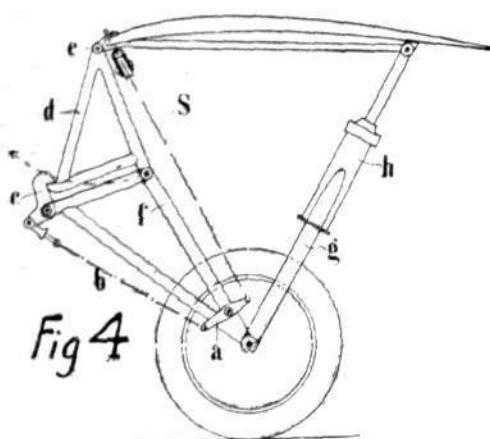


Fig. 4

absorbers, is provided with a single throw between the floats. By operating the crank, *d*, through the cable, *f*, and the tube, *e*, the wheels are raised and lowered.

The folding chassis of the *Flugzeugbau Friedrichshafen Biplane* is shown in Fig. 4. It is built up of steel tubes and bears every evidence of being a substantial job. From a small hand wheel near the pilot's seat the cable, *s*, passes round a pulley down to the

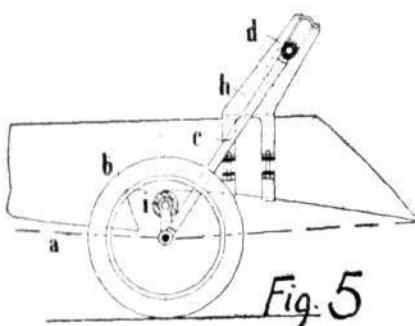


Fig. 5

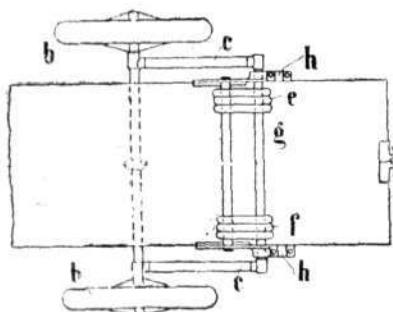


Fig. 6

lever, *a*. Another cable connects the other end of the lever, *a*, with the trigger, *c*. The release of this trigger by means of the cables allows of the upper triangle, *d*, being swung round its fulcrum, *e*, thereby lifting the lower triangle, *f*, and the wheel up against the



A Slipway for Seaplanes.

CONSIDERABLE interest is being aroused by the experiments which are being made at Buc with an arrangement, designed by M. Blériot, primarily for launching seaplanes when the sea is too rough for this operation to be carried out. The apparatus consists of steel cable about 90 yards long, suspended horizontally from a special arrangement of masts. While attaining its flying speed the machine would be suspended from this cable and on reaching the end would be released. At the end of a flight the machine would be piloted under the cable, and elevated until an arrangement at the top of the cabane gripped the cable. It will be remembered that some time ago Glenn Curtiss conducted some experiments in launching aeroplanes from an elevated cable, but in that case the aeroplane was above the cable. The idea was suggested to M. Blériot by watching the difficulty experienced by some of the pilots at Monaco in getting their machines off the water.

Aeroplages at Hardelot.

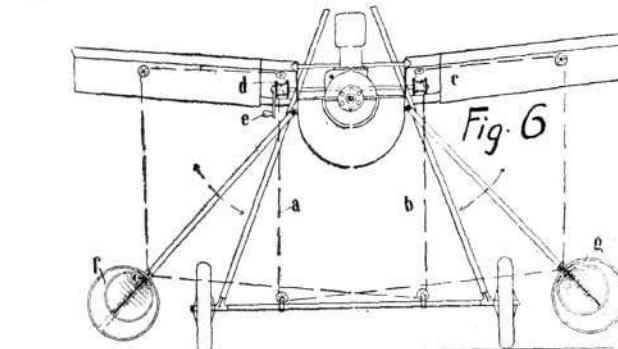
THE three days' meeting for sand-yachts held at Hardelot, on Saturday, Sunday and Monday, resulted in a complete success, and already plans are under way for organising similar meetings at

lower plane. Springing is effected by means of coil springs contained in the casing, *h*.

The *Otto biplane* has two main floats, each of which is provided with a pair of wheels, as shown in Fig. 5. The wheels are mounted on a crank situated just behind the step of the float. The tube, *e*, is connected at its lower end to the crank, which carries the wheels, and at its upper end to the cross member, *g*, to which are secured the shock absorbers, *e* and *f*. The cross member, *g*, is accommodated in a slot in the steel stamping, *h*, which is secured to the float by means of steel bands.

The chassis of the *Strack monoplane* differs from those of the other machines in that provision has been made for raising and lowering, not the wheels, but the floats.

The way in which this operation is carried out is clearly shown in Fig. 6. The floats, which are of circular cross section, are raised by



means of the cables, *a* and *b*, which pass over the drums, *c* and *d*. These latter are revolved by means of the crank, *e*, to the right of the pilot's seat. Turning the crank in one direction raises the floats by swinging them outwards and upwards round the fulcrum formed by bringing the float struts to the fuselage. They can be lowered again at will by turning the crank, *e*, in the opposite direction.

The results of the races were as follows:—

The Lake Constance Prize.—1. H. Hirth (Albatros monoplane), time, 1 hr. 46 mins. 17 secs. 25,000 mark and Grand Duke of Baden's prize. 2. Rob. Gsell (Friedrichshafen biplane), time, 1 hr. 46 mins. 51 secs. 10,000 mark and prize of Minister for Public Works. 3. R. Thelen (Albatros biplane), time, 2 hrs. 8 mins. 5,000 mark and prize of Secretary of State for Navy. 4. W. Kieszling (Ago biplane), prize of the Constance Verkehrsverein.

The Amateur Race.—1. Hans Vollmöller (Albatros monoplane), time, 48 mins. 50 secs. 5,000 mark and Kaiserl. Automobil Club's prize. 2. Kohnert (Friedrichshafen monoplane). Consolation prize of 2,000 mark and Count Zeppelin's prize.

Prizes for Construction.—1. Albatros monoplane, Pilot Hirth. 5,000 mark. 1,316 points. 2. Ago biplane, Pilot Kieszling. 3,000 mark. 1,315 points. 3. Friedrichshafen biplane, Pilot Gsell. 2,000 mark. 1,308 points.

Climbing Tests.—1. Hirth (Albatros monoplane), 500 metres in 11.6 mins. 3,000 mark. 2. Kieszling (Ago biplane), 500 metres in 12.8 mins. 2,000 mark.

Starting and Alighting Tests.—Hirth, Thelen, Kieszling and Gsell, 1,000 mark each. Vollmöller and Faller, 800 mark each. Kohnert, Bauerlein and Strack, 500 mark each.

Prizes for Mechanics (500 mark each).—1. Hirth's mechanic. 2. Hirth's mechanic. 3. Vollmöller's mechanic.

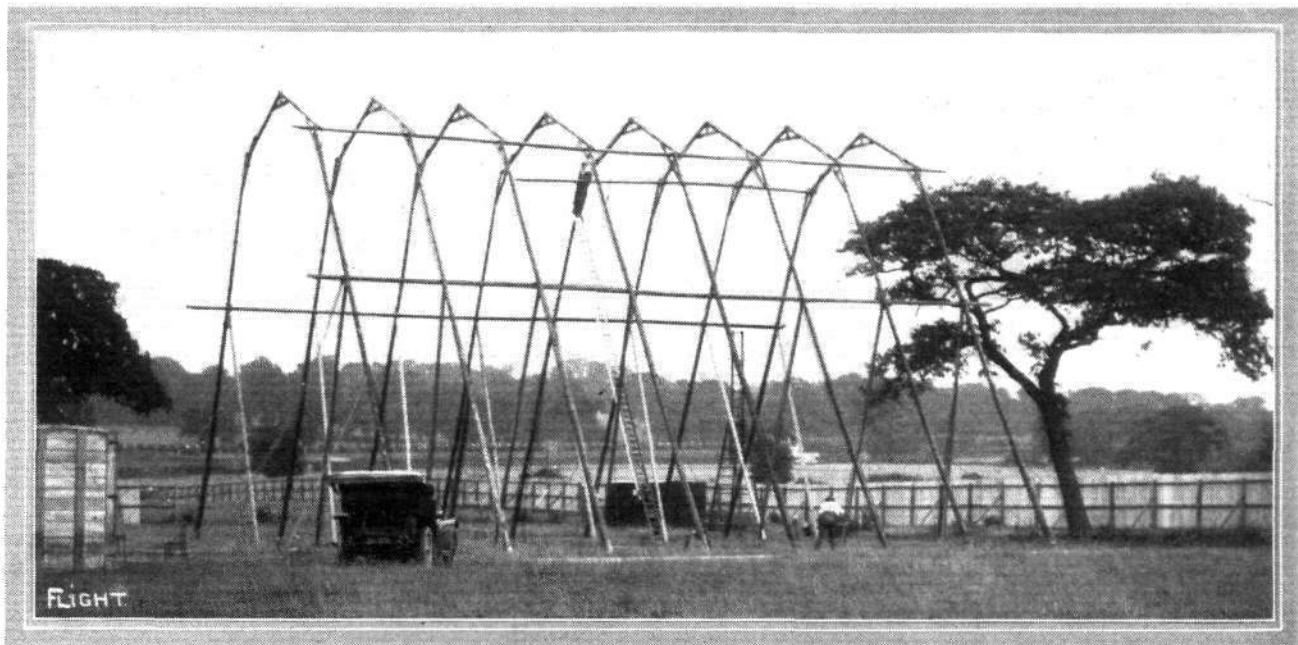


various other French seaside resorts. Of the 43 entrants some 29 took part in the racing on Saturday, although the boisterous wind caused the postponement of all racing until the afternoon. The course was one kilometre round and had to be covered five times, the winner of the final turning up in B. Dumont on a Dumont, whose time was 12 mins. 45 secs., while F. Dumont was second. On Sunday there was a race from Hardelot to Ste. Cecile and back, a distance of 13 kiloms. The first five places were secured by Dumont machines, B. Dumont being the winner in 56 mins. 20 secs. Alfred Leblanc and Emile Dubonnet on Blériots were seventh and ninth respectively. There were two items on Monday, the first a race for ladies with gentlemen passengers, while in the second the pilots were of the sterner sex with lady passengers. In each case the course was to Equihen and back, a distance of 8 kiloms., the ladies' race being won by Mme. Crespelle on a Dumont, with Mme. Wattine also on a Dumont a good second, and Mdlle. Dormain on a Blériot, third. Droschout on a Dumont won the gentlemen's race in 11 mins. 40 secs. with Acker on a Dumont second, and G. Dubois on a machine of his own design, third.

SECOND SUMMER MEETING, HENDON.

LAST Saturday started so badly as regards the weather, that many must have thought there would be little, if any, flying up at Hendon in the afternoon. As a matter of fact, things brightened up a bit shortly after noon, and although still very threatening, conditions were ideal for flying, and the speed handicap which took place shortly after 4 o'clock was the best seen at Hendon for some time. The attendance was very good, too, showing that there is plenty of enthusiasm about. Two new pilots made their first public

together. The first heat of 6 laps was composed of the following : M. D. Manton on the 50 h.p. Grahame-White biplane, 3 mins. 48 secs. start ; G. W. Beatty on the 50 h.p. Gyro-Wright, 3 mins. 18 secs. start ; Pierre Verrier on the 70 h.p. Aircraft Maurice Farman, 59 secs. start ; and Robert Slack on the 60 h.p. Rhone-Morane-Saulnier, scratch. Slack crossed the line first with 11 secs. to spare, having overhauled his rivals slowly but surely. Manton fought hard and well to regain his lead, taking the pylons in fine

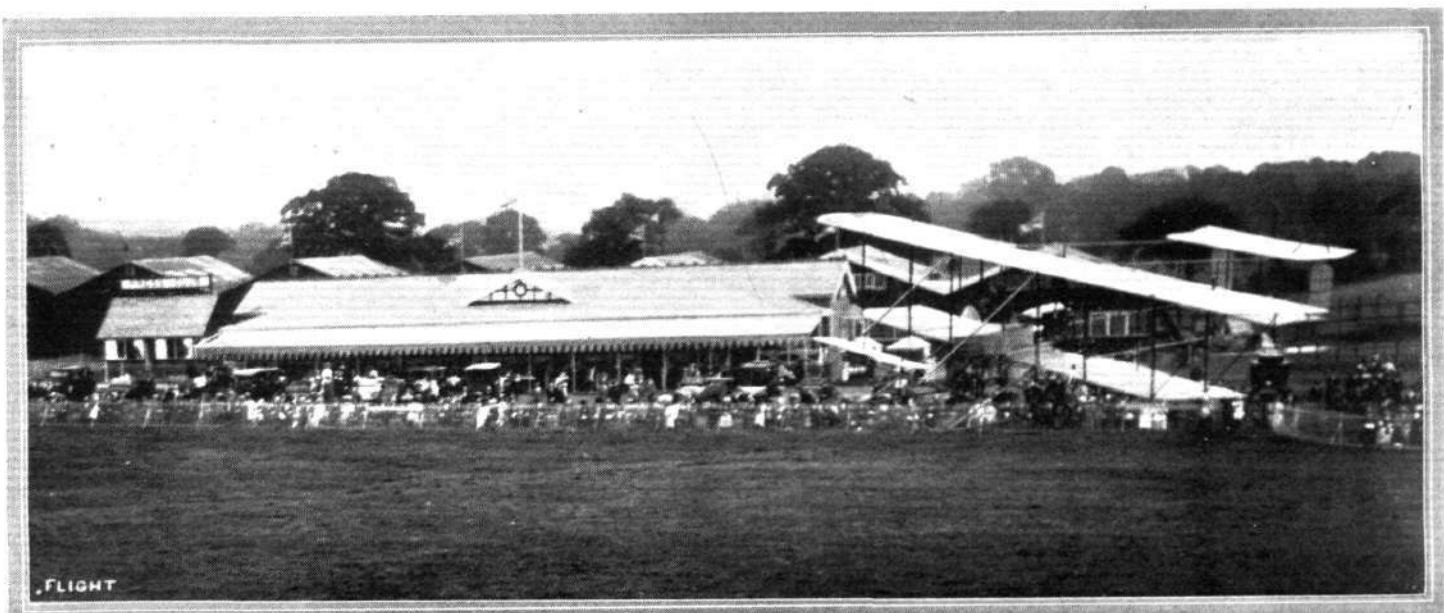


"Flight" Copyright.

The building of the Willows airship shed at Hendon, where regular airship trips, in which the public can participate, will shortly be made.

appearance, both former pupils of the Grahame-White school. These were G. Carr—who has played a by no means small part in the designing of some of the Grahame-White machines—and W. Birchenough. The former obtained his "ticket" on June 2nd, and the latter on the 13th of the same month, of this year. They both put up very creditable performances during the afternoon, flying, of course, the 50 h.p. Grahame-White biplane. The feature of the speed handicap was that no less than four machines took part in each heat, while the second heat produced a fifth. In each case, all the machines crossed the line close

style ; on the other hand, Beatty took the corner somewhat wide and consequently dropped a good way behind much to the surprise of many, as great things were expected of him. Verrier very nearly overtook Manton, coming in third, 6 secs. behind the latter. The five starters in the second heat, also of 6 laps, were :—G. Carr on the 50 h.p. Grahame-White, 3 mins. 14 secs. start ; Louis Noel on the "G.-W."-Maurice Farman, 1 min. 49 secs. start ; W. L. Brock on the 35 h.p. Deperdussin, 1 min. 37 secs. start ; N. Spratt on the 60 h.p. Deperdussin, 44 secs. start ; and M. Debussy on a new Breguet biplane, scratch. First place



"Flight" Copyright.

Pierre Verrier flying low, on the Aircraft Co.'s Maurice Farman, past the enclosure at Hendon.

went to Noel, who took his mount round very skilfully, Spratt, although he started fourth, coming in second, 6 secs. after Noel, and had he taken his corners a bit closer would probably have been first. Brock was a good third, being only 4 secs. behind the rival "Dep." Being his first race Carr wisely took no risks, and so came in fourth; but he will certainly do well in future races. Debussy did not appear to be getting full value out of the Breguet, for he gained but little on his rivals' handicap. In the final heat of 8 laps there were two very exciting flights for first and third places respectively. The limit man was Manton with 5 mins. 9 secs. start, Noel starting second with 2 mins. 53 secs. handicap, Spratt starting 1 min. 42 secs. before Slack, who was at scratch. Manton led the way until almost on the line, when he was passed by Slack, who had caught up in fine style. There was then a brief interval of 12 secs., and it was seen that Spratt was making a splendid effort to pass Noel, in which he succeeded by a bare 2 secs. The afternoon was not confined to racing, however,

FROM THE BRITISH

Brighton-Shoreham Aerodrome.

On Wednesday last week, early in the morning, the Avro pupils were very busy, a great deal of school work being accomplished. Geere first tested, and then Shaw did several straights, after which Elliot, the new pupil, handled the 'bus in improved style. Thursday Geere was out preparatory to handing Shaw the machine, and Mr. Eric Pashley made several flights on his Henry Farman. Friday the weather was bad, and on Saturday although the wind was high, both the Avro school, and Messrs. Pashley Brothers were out. There are, at the time of writing, two Breguet waterplanes in course of erection, and the capabilities of these machines will be demonstrated at Shoreham. On Sunday a meeting was held, a notice of which appears elsewhere in this issue.

On Tuesday Mr. Pashley was due at Worthing, but unfortunately the Gnome developed 100 "revs." short, and the trip was postponed for a day or two. Given a calm day, Mr. Pashley will carry two passengers to Worthing. A new pupil has joined the Avro school.

Brooklands Aerodrome.

IN the past week at the Bristol school there has been much activity; no less than seven pupils have passed their *brevet* tests in good style—a notable achievement for one school, and one upon which the instructors, Messrs. Merriam and Bendall, are to be congratulated.

for numerous exhibition and passenger flights were made from time to time. These were given by most of the previously mentioned pilots on their respective machines, in addition to which W. Birch-oughen on the 50 h.p. G.-W. biplane, E. Baumann on the 35 h.p. Caudron, L. W. F. Turner on the 60 h.p. Caudron, and J. L. Hall on his 50 h.p. Blériot, all put up a good show. Amongst the visitors was the Grand Duke Michael of Russia, whilst an extra bit of colour was added to the surroundings by a party of Chelsea pensioners, some 50 strong.

Result of Speed Handicap. Final heat, 8 laps (12 miles).

	Start.	Handicap
	m. s.	m. s.
1. R. Slack (60 h.p. Morane-Saulnier)	...	scratch 16 16
2. M. D. Manton (50 h.p. Grahame-White)	5 9	16 17
3. N. Spratt (60 h.p. Deperdussin)	...	16 29
4. L. Noel (70 h.p. Maurice Farman)	2 53	16 31



FLYING GROUNDS.

At the Vickers school, too, great progress has to be recorded, the more advanced pupils shaping extremely well on monoplanes, the teaching staff having received an addition in the person of Mr. Orr Paterson, one of the Vickers pupils who recently passed his *brevet* tests in brilliant style and afterwards won the pupils' competition.

Cricket practice is now in full swing on the specially prepared pitch at the Brooklands Aerodrome in view of the cricket match—Brooklands v. Hendon—to be decided at Brooklands on Wednesday, July 30th, when the Hendon team will be captained by Mr. Claude Grahame-White, and a keenly contested match is anticipated.

On Saturday last, Mr. Hamel started to fly to Coventry, where he had an engagement in the afternoon, but on reaching Stoke Poges trouble was experienced with the magneto, and the journey had to be reluctantly abandoned, to the great disappointment of 8,000 persons who were anxiously directing their gaze skyward at Coventry in anticipation of Mr. Hamel's appearance. Good exhibition flights were made by Messrs. Barnwell and Merriam.

On Sunday, Mr. Hamel was busy for several hours taking up passengers, the best and longest flight being enjoyed by Miss Teddie Gerrard, of the London Hippodrome—an altitude of over 8,000 ft. being reached, from which height Mr. Hamel made one of his extremely graceful spiral descents with engine cut off. Mr. Hamel also took up Mrs. Evelyn Thaw and her little son, aged 2½ years. Mr. Merriam gave some good exhibition flights on the Bristol biplane, including a spiral descent from about 2,000 ft., and



AT THE AVRO FLYING SCHOOL, SHOREHAM.—From left to right, Messrs. Geere (Instructor), Elliot, Mellersh, England, Roishoven, and (under fuselage) Shaw.

Photo by Rowe, Shoreham.



Lieut. Low, who took his *brevet* splendidly at the Brooklands Bristol School.

quite a lot of tuition. Mr. Grey and Lieut. Low practising landings. Bendall again doing straights with Lieut. Cameron. In the evening Merriam for test, then sent Lieut. Low for the second half of his *brevet*, which he passed successfully. Mr. Grey followed, flying the two tests most successfully, especially as it was rather puffy, his landing being particularly fine. Mr. Bernard Howard then passed the first half of his test in excellent style, making a very good *vol plané* to mark. Bendall finished up with a solo to sheds.

On Thursday no pupils turned up in the morning. In the afternoon Merriam gave Lieut. Mead a trip, but conditions rather bumpy. Later much calmer, Bendall tried taking Lieut. Mead as passenger, who has decided to join the school at once.

Too windy and wet on Friday for flying early. About 11 a.m. conditions better, Merriam testing machine and up with Lieut. Mead (new pupil). 7 p.m. wind ceased. Merriam for test then up with Lieut. Mead for a good turn. Mr. Bernard Howard following with a solo and practising landings. Too late to take *brevet*.

5.15 a.m. on Saturday Merriam for a solo, then up for several circuits, taking Lieut. Mead. Mr. Bernard Howard then away for second half ticket, obtaining same very well indeed, *vol planing* to mark. Merriam up again with Lieut. Mead until it became very bumpy. 5.30 p.m. Merriam for solo, then up with Lieut. Leivis (new pupil) for a long flight. Too windy for further flying. Merriam for test at 4.30 p.m. taking Lieut. Leivis as passenger, afterwards with Lieuts. Mead and Darley (the latter a new pupil) also a passenger, afterwards giving an exhibition flight and spiral from nearly 2,000 ft., engine cut off.

he also took up the winner of the ballot for the free passenger flight—Mr. F. Villa, of 48, Great Portland Street, London.

Bristol School.—No flying in the morning on Monday last week owing to all pupils being away in town. In the evening Merriam test, then Mr. Grey and Lieut. Low practising landings. Bendall finished with a solo.

On Tuesday, raining all the morning up to 12 o'clock. Merriam made a test then behind Lieut. Cameron on several straights and a couple of circuits. Rain stopped further flying. Bendall for tests on Wednesday, then behind Lieut. Cameron, giving pupil

plane No. 20 with Capt. Fairfax. In evening Barnwell test on No. 3 mono., Mr. Elsdon and Mr. Beevor straights. Knight on biplane No. 20 solo, and with Mr. Webb. Mr. Newton-Clare solo. Barnwell testing No. 2 mono.

Early in morning Wednesday, Barnwell on biplane No. 20, Mr. Newton-Clare on same machine. Knight with Mr. Webb, then Mr. Webb solo for straights and circuits. Mr. Newton-Clare solo. Barnwell testing No. 3 mono., and then on biplane No. 21 with Capt. Fairfax. Mr. Elsdon solo straights on No. 3 mono., Knight with Mr. Webb on biplane No. 21. In evening Barnwell on biplane No. 21 solo, and with passenger. Knight on biplane No. 20, solo and with passenger.

Thursday morning, Knight for test on biplane No. 20. Mr. Newton-Clare then went for his *brevet*, getting through very well, at average height of 250 ft., with good banked turns and good landings close to mark on each occasion. Mr. Orr Paterson solo.

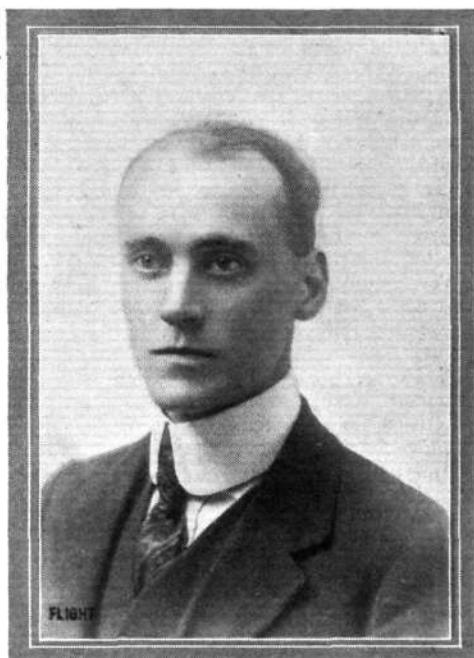
Friday evening, Barnwell on biplane No. 20 with Capt. Fairfax. Mr. Webb solo straights. Capt. Fairfax solo straights.

Knight on biplane No. 20 solo Saturday morning, and then with Capt. Fairfax. Mr. Orr Paterson solo, and then Capt. Fairfax after having done only two or three straights solo, went away for circuits and figures of 8 in excellent style. Knight test on No. 2 mono. Mr. Elsdon and Mr. Beevor solo straights. In evening Barnwell on biplane No. 21 with passenger.

Eastbourne Aerodrome.

WEDNESDAY last week, Fowler was up with Roberts in the 80 h.p. Farman waterplane, but after one flight, weather conditions being bad, nothing further was done.

Fowler had another try Saturday, this time with Gassler as passenger, but rough sea and wind prevented anything being done. Sunday afternoon was a little better, when Fowler had the school bus out, and after testing it took up a passenger. Mr. Fill followed shortly after, doing a solo in good style. He is now quite ready for his ticket, and only awaits favourable conditions. Gassler went up on the 50 h.p. Gnome-



Mr. T. W. Elsdon, who passed for his certificate in excellent style at the Vickers Flying School at Brooklands this month.



Mr. Hans Rolshoven, the first pilot to take his certificate at the Shoreham Aerodrome. He made the necessary flight on an Avro tractor biplane on the 14th inst.



Capt. Boddam-Whettam, who has just taken his *brevet* at the Grahame-White School, Hendon.

Blériot, climbing to over 3,000 ft., very rapidly, and becoming lost to sight in the clouds for a time, reappearing shortly afterwards, he made a fine *vol plané* to earth, landing excellently in front of the sheds. Altogether a very spectacular flight. Roberts was up at the same time on the Bristol. Monday morning some work was put in on the waterplane, but the wind freshened and put a stop to it by midday.

London Aerodrome, Colindale Avenue, Hendon.

Grahame-White School.—Mr. H. Russell out early Monday morning, last week, doing straight with Instructor Cheeseman, afterwards solo straight and circuits, and showing good progress in landing. Mr. Manton out on No. 109 at 12.20 p.m.

Wednesday, Lieut. Eales out at 4.35 a.m. doing circuits with Instructor Noel in spite of weather being foggy. This same pupil afterwards doing circuits alone. Sir A. Sinclair practising circuits. Lieut. Moore out at 5.10 a.m. doing circuits with Instructor. Mr. R. H. Carr, Mr. H. Russell and Lieut. Eales also doing circuits. Lieut. Moore solo straight. Mr. Russell continuing practising, doing circuits alone at an altitude of 400 ft. In the evening pupils again getting good practice under the superintendence of Instructors Noel and Manton. Mr. J. D. North doing straight with Instructor Manton.

No outdoor work in early morning Friday owing to bad weather. In the evening Lieut. Moore out on No. 109 doing circuits, also Mr. Russell, circuits at 600 ft.

Saturday, Lieut. Eales out at 4.45 a.m. doing straight with Instructor Noel, afterwards alone, and also doing circuits. Mr. Russell out at 5.55 doing good work and right-hand turns. Lieut. Moore also doing circuit and right-hand turns. Each of these three pupils afterwards practising figure eights.

British Deperdussin School.—On Wednesday, last week, Mrs. Stocks was up in the 35 h.p. Dep. No. 5, flying very steadily. This was her first flight on a Dep. On Thursday evening Lieut. H. le M. Brock passed all *brevet* tests in good style.

Col. Smyth, on Monday, flying figures of eight on No. 5 showing great improvement. On Wednesday he passed *brevet* tests on the machine at 400 ft., making very good flights. Mr. Spratt for solo on 60 h.p. in evening.

Mr. Brock passenger carrying and exhibition flights, Thursday, on 100 h.p. Mr. Spratt doing ditto on 60 h.p., landing each time with well calculated *spiral vol planés*!

No school Friday, but Saturday Mr. Brock on 35 h.p., Mr.



Capt. Robin Grey, prospective Unionist candidate for Bishop Auckland, who obtained his R.Ae.C. certificate in fine style at the Bristol School, Brooklands.

Spratt on 60 h.p. in speed handicap, the latter finishing third in final. Later Mr. Spratt passenger carrying.

Mr. Brock took out new 75 h.p. two-seater on her maiden trip Sunday, flying splendidly, the machine answering all controls with greatest ease. Mr. Spratt passenger carrying on 60 h.p. always at a good height.

W. H. Ewen School.—On Monday, last week, the pupils were out at 4.20 under the instruction of Mr. L. W. F. Turner and M. Baumann. After test flight by M. Baumann on 35 h.p. Caudron No. 2 he handed machine to Messrs. Jagenberg and de Havilland, who were making nice straight flights, while Capt. Jenings was rolling and hopping. Mr. Turner made a test flight on 35 h.p. Caudron No. 1, and then handed machine to Messrs. Dalrymple-Clark and Strange, who were doing circuits and half-circuits in good style.

The school was out at 4.40 a.m. on Wednesday, when M. Baumann, after test flight on Caudron No. 2, handed machine to Mr. L. H. Jagenberg, who was making straight flights, and Capt. Jenings who was rolling and hopping. Mr. L. W. F. Turner, after testing Caudron No. 1, handed machine to Messrs. Dalrymple-Clark and Strange, who were making excellent progress in circuits. During the afternoon Mr. Turner made several flights.

At 3.50 a.m. on Tuesday, the pupils were out under the instruction of Mr. L. W. F. Turner. After test flight on Caudron, he handed machine to Messrs. Strange and Dalrymple-Clark, who were doing circuits.

Friday morning was too windy for school work, but the pupils were out at 7 p.m., when, after test flight by Mr. L. W. F. Turner on Caudron No. 1, he handed machine over to Messrs. Dalrymple-Clark and Strange, who were doing circuits. Messrs. de Havilland, Jagenberg, and Capt. Jenings were doing straight flights, and Mr. T. L. S. Holbrow received first instruction on Caudron No. 2.

On Saturday the pupils were out at 5 a.m. After test-flight by Mr. L. W. F. Turner, on Caudron No. 1, Mr. Dalrymple-Clark made a few circuits, and then passed all the tests for his R.Ae.C. certificate, flying in excellent style and landing near mark. Messrs. Strange and Gist were also doing circuits on same machine. On No. 2, Messrs. de Havilland, Jagenberg and Capt. Jenings were doing straight flights, and Mr. Holbrow rolling.

Temple School.—On Monday last week, at 6 a.m., Douglas Ritchie flew circuits in good style, A. Vaile and M. Lance each having 10 mins. practice on Caudron, landings much improved. The wind prevented school work on Tuesday. George L. Temple came out in the afternoon and flew several times in his usual good style. The next day school opened at 6 a.m. Ritchie circuits, Penny, Vaile and Lance all improving on Caudron. On Thursday afternoon George L. Temple was out with a lady passenger on the Caudron, in a bumpy wind. Next morning at 5.30 a.m. Messrs. Ritchie, Vaile, Penny and Lance each had 12 mins. on Caudron; the wind rose just as Douglas Ritchie was preparing to go for his certificate tests. On Saturday George L. Temple gave two splendid exhibition flights, his switchbacks being very noticeable; he was also out giving exhibitions until late on Sunday evening. On Monday, at 6 a.m., Messrs. Vaile and Lance had 10 mins. practice.

Bristol School.—Busteed first up on Monday last week for trial on monoplane, reaching 3,500 ft. Pixton with Capt. Buckland on biplane for three flights. Capt. Popovici excellent solo on monoplane for three-quarters of an hour. Lieut. Beroïnade biplane solo. Jullerot two tests on biplane and on tandem monoplane. Busteed with Lieut. Pascanu on tractor biplane, then solo on same machine. Pixton with Capt. Buckland on biplane. Pizey with another pupil. Sippe for flight of one hour on monoplane. Prince Cantacuzene also on same machine. Capt. Popovici two solos on tandem, and later another on similar type machine.

Windy first thing Tuesday. Jullerot for trial, but conditions too bad. Capt. Popovici short solo on monoplane, but no further flying attempted. Thunderstorm delayed evening's flying. Busteed out on 80 h.p. tractor biplane, flying several circuits with nicely banked turns, witnessed by Sir George and Lady White. Jullerot also out on a tandem monoplane. Pixton with Capt. Buckland and Surgeon Hitch. Rain put an end to any more flying.

Wind and rain all Wednesday morning, no flying. Busteed out on a tractor biplane in the evening. Pixton with Mr. Courtney twice, and Capt. Buckland, Surgeon Hitch, and Lieut. Lee. Lieuts. Beroïnade and Pascanu good biplane solos. Jullerot test on one of the tandem monoplanes, afterwards Capt. Popovici solo on this machine. Sippe on side-by-side monoplane for solo, then with Lieut. Bateman. Busteed again on tractor biplane.

On Thursday Jullerot test on a tandem monoplane, and then Capt. Popovici solo on this machine. Sippe test on a sociable mono., then Major Hewetson and Mr. Garnett for solos. Pixton with Surgeon Hitch twice and Mr. Courtney on biplane. Sippe tuition to Capt. Richey on tandem monoplane. Lieut. Pascanu solos on biplane and sociable monoplane. Lieut. Beroïnade solo on sociable monoplane. Jullerot on tandem with Lieuts. Beroïnade

and Pascanu, these pupils then for solos. Busteed two long flights on tractor biplane, taking Capt. Buckland as passenger. Pixton took two passengers for flights, and then Major Hewetson set out for his *brevet* on the side-by-side monoplane, which ended fatally as reported elsewhere. No further flying during the day.

No flying on Friday morning on account of bad weather. Busteed first up in the evening with Capt. Popovici on monoplane for an hour with many landings for practice. Pixton on biplane with Surgeon Hitch twice, Capt. Buckland and Mr. Courtney twice and passenger. Pixton first trip in new 80 h.p. tractor biplane, Sippe taking Mr. Garnett in tandem monoplane. Jullerot in side-by-side with Lieut. Lee. Pizey tests two school biplanes, then with Capt. Buckland, Surgeon Hitch, Lieut. Bateman, Lieut. Lee and Mr. Courtney, twice each pupil. Lieuts. Pascanu and Beroinade biplane solos, and Capt. Popovici good monoplane solos.

Busteed with Capt. Popovici on Bristol 80 h.p. tractor biplane on Saturday with many landings. Sippe on tractor with Capt. Buckland, Lieut. Beroinade practising landings on tandem monoplane and two biplane solos. Lieut. Pascanu one monoplane solo and two trips on biplane. Capt. Popovici monoplane solo. Pizey biplane tuition to Capt. Buckland. Surgeon Hitch and Mr. Courtney two flights each. Jullerot flight for the benefit of a party of children, but conditions too unfavourable for school work.

Jullerot solo early Sunday morning on one of the tandem monos., and Capt. Popovici two solos on similar machine. Busteed test on another tandem monoplane.

Royal Flying Corps, No. 3 and 4 Squadrons (Netheravon).—On Monday week Capt. Fox was on Blériot 221 for a flight of 40 mins. at a height of 6,900 ft., after which he took up four air-mechanics: Austin to 600 ft., Robins to 1,100 ft., Barlow to 600 ft., and Ware to 500 ft. Lieut. Carmichael on H. Farman 284, with Lieut. Christie as passenger, on reconnaissance work, after which he made four more flights, taking up Capt. Herbert on two of these. Lieut. Roupell, on H. Farman 286, took up Capt. Herbert, Lieut. French, Sergt. Sharpe, Mechanics Pratt and Aylen. Lieut. Roupell, with Pratt, carried out some experiments in dropping messages. Lieut. Hubbard was on H. Farman 352, while Lieut. Cholmondeley took up Lord Everington, Lieut. Beech, Lieut. Lucas, and Lieut. Diston of the O.T.C.

Capt. Fox was also first out on Blériot 221, with Lieut. Conran as passenger, on Tuesday, making two flights of 20 mins. each, the return journey from Devizes being accomplished in a thunderstorm. Lieut. Carmichael round aerodrome for a short flight, and then went off on a splendid cross-country flight to Bournemouth, Isle of Wight, and the surrounding country, with Air-Mechanic Walland. He intended to land at Bournemouth, but did not, owing to the fields being ploughed up. The return journey was very hard for the pilot, owing to the mist and heavy rain. Later, he made another flight with Lieut. Burroughs to Devizes to fly before the review that was being held there. Flying for 2 hours 40 mins.

Wednesday morning saw Capt. Fox and Lieut. Wadham on Blériot 221 go for a good cross-country flight to Bournemouth, Isle of Wight, and all round, the time there and back taking 2 hrs. 22 mins. Lieut. Carmichael and Capt. Herbert were on H. Farman on reconnaissance work over the Artillery Ranges, after which Capt. Herbert made two flights by himself on the same machine. Lieut. Hubbard, with Mechanic Littlejohn, after with Lieut. Cholmondeley. Lieuts. Herbert and Allen each made two flights on H. Farman, the latter taking up Mechanic Miles. Lieut. Conran made a good flight on Avro 288.

Thursday, Lieut. Cholmondeley on H. Farman three flights, one with Lieut. Christie to Knighton Down to observe artillery fire, and one with Mec. Littlejohn. Lieut. Hubbard, with Major Brooke-Popham as passenger, to Eastchurch Ranges to observe fire. Capt. Herbert later for two flights by himself. Lieut. Conran made two visits on Avro 288 to Central Flying School.

Lieut. Joubert-de-la-Ferte up three times on Avro 290 Friday, afterwards Sergt. Bruce made two flights on the Avro. Capt. Herbert made two flights on H. Farman, Lieut. Conran three on Avro 288, one of 1 hr. 7 mins. duration, and another with Major Brooke-Popham.

Saturday, Lieuts. Joubert-de-la-Ferte and Conran and Sergt. Bruce were out on Avros.



Prince Henry's Views on Age Limit.

APROPOS of the comments made at the inquest on Major Hewetson, our contemporary the *Daily Mail* has secured from Prince Henry of Prussia, who it will be remembered qualified for a pilot's certificate some two years ago, when he was 49, an expression of opinion as to an age limit for pilots. Prince Henry, who has made several flights at the Kiel meeting, thinks that "Exceptions being granted, the average airman should not be over the age of thirty. In my opinion young men in their twenties, who are neither married nor engaged to be married, are as yet likely to be the most successful airmen."

THE ROYAL FLYING CORPS.

The following appointments were announced by the Admiralty on the 22nd inst. :—

Sub-Lieuts. (R.N.R.)—L. G. Marix and Hugh A. Littleton, to the "Actaeon," additional, April 17th, and to the "Hermes," additional, for Naval Flying School as Flying Officers, to date May 7th, appointments as Flying Officers antedated.

ROYAL FLYING CORPS (MILITARY WING).

WAR OFFICE summary of work for week ending July 18th :—

No. 1 (Airship) Squadron. Farnborough.—The week was devoted to Kite drill and to rigging "Beta" (old envelope and car).

No. 2 Squadron. Montrose.—A considerable amount of flying on B.E.s. and M. Farmans took place, but the week was chiefly devoted to making preparations for the Ayrshire manœuvres.

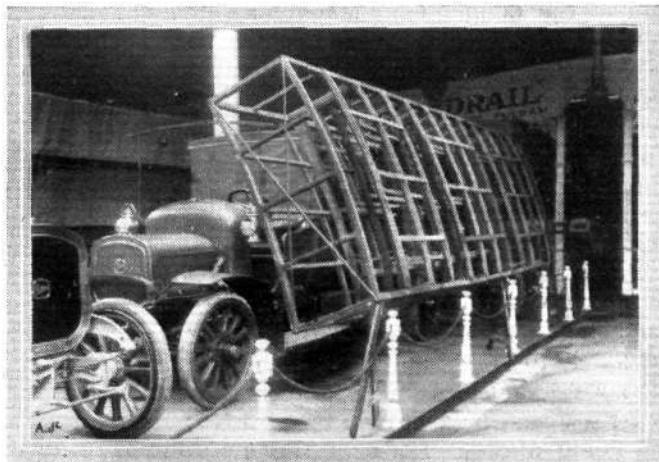
No. 3 Squadron. Netheravon.—The Officers and N.C.O. pilots were flying on the 10th, 11th, 12th, 14th, 15th and 16th. The work consisted of observation of artillery fire, reconnaissance of troops and various experiments. Several reconnaissance flights to the Isle of Wight were made. The detachment at Lydd carried out numerous artillery "observations" during the week.

No. 4 Squadron. Netheravon.—The Officer, N.C.O., and Air Mechanic pilots were out daily carrying out reconnaissance of troops. Over 60 flights in all were made. The machines used consisted of B.E.s. and M. Farmans.

Flying Depot.—Experimental work on H. and M. Farmans was continued. On the 14th and 16th some useful reconnaissance work with the 1st Division was carried out.

The Fatal Accident on Salisbury Plain.

AT the inquest which was held at Bulford Camp Hospital on Wednesday of last week concerning the fatal accident to Major Hewetson earlier in the day, the evidence given by those who were observing the flight, which was being made to qualify for a pilot's certificate, led to the conclusion that the accident was caused by an error of judgment, the pilot attempting to make too sharp a turn. The Bristol monoplane had been flown by another pupil just previously, after which Major Hewetson had made a short trial trip before setting out on his test flight. He made one wide turn successfully, but in attempting a second turn banked too steeply, and the machine dived straight to the ground. Mr. Jullerot, in giving evidence, said he flew over the spot after the accident and found nothing wrong with the air. He was asked by the Coroner whether he did not think forty-four years of age—Major Hewetson's age—rather late in life to begin flying, and in reply he said he had come to the conclusion that it was not advisable for men of that age to take it up at all. Medical evidence was given showing that death was instantaneous. The Coroner, Mr. F. H. Trethewan, in summing up said that it was one of the sad accidents which marked the progress of aviation, but there was nothing in the case to suggest culpable negligence attaching to anyone. An experienced pilot had tried the machine after it had been overhauled, the weather was good for flying and the pilot was considered competent to fly the machine. A verdict of accidental death was returned.



"Flight" Copyright.

AT OLYMPIA MOTOR EXHIBITION.—The Wing Wagon of the Royal Flying Corps.—Aeroplane wings are placed in the crate, which is drawn up to the roof of the vehicle by a chain elevating gear carried on board. The particular car shown is a Delahaye.

ARMCHAIR REFLECTIONS.

By THE DREAMER.

How I Saved £500,000.

FIVE HUNDRED THOUSAND of "the best" is a lot of money even for me, yet this is the sum I had THOUGHT of spending. No, I am not a millionaire, and I did not start life as Prime Minister at nothing a year with a £5,000 job thrown in as a side line. I have simply had to proceed strictly on copy-book lines, which, in addition to teaching me how to write—up strokes thin, down strokes thick (I think one's future efforts in life are generally founded on this basis, but this by the way)—also taught me many good proverbs, one of which was "A friend in need is a friend indeed." England wanted a friend, and I, ever ready at the call of duty, was about to fill the bill.

And on what had I thought to spend this money on?—a lamp—a sorry-looking thing of tin and horn that looks worth about 3s. 6d., but which is said to be in good working order. I know there are plenty of lamps to be had for far less than this huge sum, but this is not an ordinary lamp, as you may guess. It hangs, or did hang in the window of a curio dealer's shop in a Surrey town, and is, or was labelled "Aladdin's lamp, in good working order, price £500,000."

I know you will all have thought I could not have raised that amount of money; but I could; it is dead easy if you go the right way to work. I should simply have made out a cheque for the amount and have handed it over to the dealer, and then, holding the lamp in my hand have said—very quietly so as not to break the spell—"I wish he may get the money," there you are—perfectly simple, simply perfect.

If I had bought that lamp, I was going to wish all sorts of things on behalf of the present Government, and the aerial defence of this country, but now they are introducing an aerial department at the War Office with Brigadier-General Henderson—a real live pilot—at the head, it is not necessary. General Henderson in addition to being a pilot, is a soldier, with all, I hope, a soldier's way of speaking out, and I hope he will speak out now, and damn the consequences. What we want to know is how we stand. We have had quite enough tomfoolery just lately to last for generations. It is not yet too late to pull things together and get our ship safely into port providing we have the right man at the helm. Only a year or two ago France was supposed to be decadent beyond the possibility of recovery, to-day France is beating us hands down because she found the right men. Briand-Poincaré, that's the password. Germany is coming along gently; I see they are going to increase their navy—Germany is all right. France has got aeroplanes—we are supposed to know how many. Germany has got aeroplanes, we are supposed to know how many. England has got aeroplanes—we are not supposed to know how many—but both France and Germany could tell us without going round to count them if they would. Looking at things as we are expected to look at them—from the outside—what have we got to grumble about? We've got plenty of aeroplanes—haven't they told you so? Look how we are going ahead. Look at the air squadrons we are establishing. Look at the aerial coast-defence stations we are forming. Haven't we got airships capable of flying round St. Paul's? Aren't there a number of manufacturers, only waiting for war to break out, to start building machines? Haven't we got (at the moment of writing) a War Secretary who can't fly controlling the

flying business, and an ex-journalist as First Lord of the Admiralty? Isn't England at the present moment in the very pink of condition? Bah! your grumbling makes me feel sick. Well, let's wait and see—we are good at that anyhow.

In the *Daily Mail* for July 19th, I find this: "Colonel Seely's Boast. Colonel Seely, Secretary for War, speaking of the Royal Flying Corps at the Liverpool Reform Club yesterday, said it was a satire on civilisation and Christianity that the Christian nations of the world should carry engines of war not only under the sea but in the air. It was madness to continue this competition, but as a great man, Mr. Lloyd George, had said they could not afford to be left behind in the race, however unwise. 'We are not, and will not, be left behind,' said Colonel Seely with confidence. 'Owing to the remarkable adaptability of British officers and men, there are to-day no fewer than 174 qualified pilots, while at this time last year there were but 14. This marvellous advance shows that we have the power to hold our own in the air as we have done before on land and sea.'"

Was ever such perfectly beautiful nothingness so eloquently wrapped up in verbose verisimilitude, even by a Cabinet minister, before?

The Round Britain Race.

As the time for the start of the Round Britain race draws near, I am given to wondering what the result will be; whether any one of the four pilots who have entered will get through within the time. It is possible, of course, that one or even more may do so, but it is to be a great fight and the adventures are likely to be many and varied. Flying has progressed considerably since the last circuit of Britain, and taking into consideration the long distance flights now made almost weekly, it would hardly be safe to prophesy entire failure. However, to take an aeroplane round the coast of England and Scotland with a call at Ireland is no child's play, and should luck be against our brave pilots and they fail to complete the course in the time allowed, or even do not get round at all, they will yet have done an infinite amount of good to aviation. The mere fact that they have entered at all, and that they have faith in the machines they fly to accomplish such a journey is most praiseworthy, especially when it is borne in mind that at least three out of the four are flying machines of their own design and construction, and the fourth, although he cannot quite be bracketed in these conditions, has a very high place in the realms of aviation. The more so, that he is an amateur enthusiast first and last. Given suitable weather I should not be greatly surprised, and should be immensely pleased, to hear that all four had completed the course. Should any one of them manage it in the stipulated time, aviation, including the building of English engines, should receive a fillip the value of which is almost incalculable. Messrs. McClean-Cody-Sopwith-Radley, here's good luck to you, your pluck is appreciated in the whole world of aviation.



A Balloon Record Passed.

At a meeting of the A.C.F. Commission Sportive last week, official recognition was given to the French balloon height record of 10,108 metres, made by M. Bienaime on May 28th. The Commission also confirmed the award of the A.C.F. Balloon Grand Prix to Alfred Leblanc, with the second, third and fourth prizes to MM. René Rumpelmayer, Louis Pierron and Maurice Bourgeois respectively.

BRITISH NOTES OF THE WEEK.

The Naval Station at Cromarty.

ACTIVE work began at the new Naval Aviation Station at Cromarty last week when a 120 h.p. Maurice Farman seaplane was put through its paces by Renaux and was afterwards piloted by Lieut. Longmore and Lieut. Oliver.

Hydro-aeroplane Race for Cowes Week.

SIR THOMAS LIPTON has offered to the Royal Aero Club a 100 guinea cup for a race for hydro-aeroplanes to be held over a course of about 60 miles in the vicinity of Cowes on August 6th, the Wednesday of Cowes week. The start will probably be given at about 4 p.m., after the boat racing is over for the day. Entries close on August 2nd.

An Auspicious Anniversary.

YESTERDAY, Friday, was the fourth anniversary of the first crossing of the English Channel by an aeroplane, for it was on Sunday, July 25th, 1909, that Louis Blériot flew from Sangatte to Dover in 37 mins. and won the *Daily Mail* prize of £1,000.

A New Course at Brooklands.

FOR the aeroplane handicap which is to be held at Brooklands in connection with the race meeting on August Bank Holiday, an innovation is to be made. A course will be marked out following as nearly as possible the outlines of the track, but omitting the big bank under the members' bridge. The competing aeroplanes will pass down the straight each time turning at a point just beyond the paddock. In order to prevent any possibility of the machines flying over the spectators' heads at the finish when the machines may come close together, the finishing line will be from the official building to the railway straight. Competitors will pass three times in front of the members' hill, and by this arrangement an excellent view will be obtained of the race without the necessity of going from the paddock to the flying ground in order to take an intelligent interest in it. This is a very wise move on the part of the management, and with their wider arrangements for Sunday flying should help materially to further popularise this great centre of sport.

Mrs. Pickles Crosses the Channel.

ON Monday last Mr. Sydney Pickles made another of his periodical trips across the English Channel with a Caudron biplane, and this time his passenger was his mother, who is paying a visit to the old country. It may be mentioned in passing that Mrs. Pickles was the first lady to drive a car in Australia. The machine was a Caudron seaplane for the Admiralty, and it was intended to fly on to Eastchurch, but owing to engine trouble a stop had to be made at Folkestone, the machine being taxi-ed into the harbour.

The *Daily Mail* Round Britain Race.

IT will be seen from the official notices of the Royal Aero Club on page 819, that the Admiralty are arranging to place the Aviation Station at Calshot in Southampton Water at the disposal of the competitors taking part in the *Daily Mail* waterplane race round Great Britain. The Royal Motor Yacht Club will also assist at the start of the race by keeping the course clear. The start will be made from the Enchantress, the floating clubhouse of the Royal Motor Yacht Club, which is moored off Netley, and it will also be the headquarters of the officials. From there the competitors will fly between the two lightships at Calshot and by the Horse Sand Fort to the open Channel. Entries at the increased fee of £150 finally close on August 1st.

Verrier Delivers another Aircraft Co. Farman.

VERRIER, accompanied by a passenger on a new Maurice Farman, left on Friday last week for Eastchurch arriving there some 50 minutes later after passing through two rain storms. On Monday he put the machine through the necessary tests at Eastchurch. In the climbing test, he climbed the requisite 3,000 ft. in 14 mins., finishing with a fine glide with his motor completely stopped, taking over 6 min. to descend.

Convoying the Channel Steamer.

JUST before the departure of the Folkestone boat on the 14th inst. H. Farman on his hydro-biplane, with three passengers on board, flew out from Boulogne Harbour. Some distance out at sea the boat was met, and for some ten minutes the hydro-aeroplane skimmed alongside it. Then the machine was elevated into the air and returned to Boulogne.

Shoreham Meeting.

LAST Sunday an exceptionally large crowd witnessed some really smart flying at the Shoreham Aerodrome, when Messrs. Pashley Brothers, and the Avro school contributed to a full programme during the afternoon and evening. Mr. A. E. Geere went up, doing several circuits, and flying very nice indeed. Mr. Eric Pashley took up several passengers, and when alone, gave the assembly some of his "Tango" tricks, displaying his skill to its best advantage. Mr. Gaskell went out on an Avro, and Mr. Shaw, one of the pupils, completed his first circuit, after which he showed much more confidence in himself and his machine. It was quite late in the evening before the crowd dispersed, but from the number who preferred to remain outside the 'drome, it appears that sixpences and shillings must be very scarce indeed just at present.

Herr Hans Rolshoven, who secured his ticket the other day, has left for Germany.



FLIGHT

SUNDAY FLYING AT BROOKLANDS.—Mr. Gustav Hamel gives our photographic artist a "sitting" whilst Miss Teddie Gerrard looks on innocent of the fact that she is included on the plate.

FLIGHT

FOREIGN AVIATION NEWS.

New Italian Height Record.

ON the 21st inst., at Turin, Sergeant-Major Brack-Papa, on a Maurice Farman biplane, beat the Italian height record, climbing to 3,050 metres. The old record stood at 2,800 metres.

Records at Kiel Meeting.

THE flying meeting held at Kiel last week resulted in several records being made. On the 14th, Lieut. Canter made a new German record by taking a passenger up to 3,270 metres, while Stoeffler took two passengers up to 1,740 metres and Stiploscheck with a load of 286 kilogs. climbed 1,260 metres. A reconnoitring competition was held on the 15th, Lieut. Canter being first in 42 minutes, Stiploscheck taking second place in 46 mins., and von Hiddesen third in 49 mins. During the week Lieut. Canter also improved the German altitude record, taking it up to 4,087 metres.

Henry Farman Back at Buc.

CONCLUDING the series of exhibition flights at Boulogne by taking four persons up on his waterplane, on the 17th inst., Henry Farman had the floats on his machine replaced by the ordinary landing chassis, Fischer's H. Farman machine being similarly converted. Each with a passenger, the two then flew in company back to Buc making a stop en route at Crotoy.

Guillaux's Long Tour.

WHEN Guillaux landed at Juvisy on the 18th inst., he had completed quite a long journey round France on his Clement-Bayard monoplane. After making his fine non-stop flight from Paris to Bordeaux on Saturday week, he decided to fly back by easy stages. On the 14th inst. he was at St. Hippolyte du Fort, and then went on to Montelimar by way of Nimes and Avignon, crossing the Cevennes at a height of 2,000 metres. The next stage on the 17th inst., was by way of Lyon to Dijon, from whence the last 315 kiloms. to Juvisy were covered on the following day. Guillaux's Clement-Bayard monoplane has a Clerget motor and Chauviere propeller.

Fatal Accident to French Officer.

WHILE making a sharp turn at Chalons, on the 17th inst. to avoid a battery of artillery, Lieut. Chaignot's machine side-slipped from a height of 100 metres and the pilot was killed on the spot.

Levasseur Continues.

ON the 14th inst. Levasseur on his Nieuport hydro-aeroplane made another stage of his journey by flying to Emden.

Gilbert Makes a Long Flight.

ON his Morane-Saulnier monoplane, Gilbert on Saturday last started from Villacoublay to fly to Rodez. Keeping above the clouds, relying on his compass he missed his way, and landed at St. Affrique, having made a non-stop flight of 550 kiloms. in 4 hrs. 50 mins.

The Match at Juvisy.

JUVISY, on Sunday last, was the scene of a three-cornered match between Brindejone des Moulinais, Audemars, and Guillaux. The first contest was for speed, and in the first heat Audemars on a Morane beat Guillaux on his Clement-Bayard, the former's time for the 20 kiloms. being 10 mins. 46 $\frac{1}{2}$ secs. In the second heat, Brindejone, also on a Morane, beat Guillaux, his time being the same as Audemars. Audemars then beat Brindejone, but in the final, Brindejone turned the tables on his rival, and by covering the 20 kiloms. in 10 mins. 16 $\frac{1}{2}$ secs., won the match. During an interval, Champel improved the shining hour by taking up two and three passengers at a time on his great biplane with 100 h.p. Anzani motor. The last event was an altitude contest, the maximum time being half an hour. Audemars went highest, 3,800 metres, but as he stayed up 35 mins. he had to be disqualified, and the prize awarded to Brindejone, who went up 3,000 metres in 28 mins. 57 secs. Guillaux was second with 1,320 metres.

Buc to Dieppe on a Blériot.

ALTHOUGH he only just recently finished his period of tuition, Bidot, on his Blériot-Gnome two-seater, last week made a fine initial cross-country trip, going from Buc to Dieppe in an hour and a half. During this week he has been giving exhibition flights at Dieppe.

Nieuport Superior Pilots.

TWO C.N. pupils at the Nieuport school at Villacoublay made tests for superior *brevets* over the Villacoublay-Orleans-Chartres course on the 16th inst., while Aleja Tinas made a flight of an hour on a 2-cylinder school machine.

Perreyon Visits Hardelot.

ON his Blériot-Gnome monoplane, Perreyon, the altitude record holder, on the 15th inst. flew from Amiens to Hardelot

Excursions on Farmans.

ON the 16th inst., Maurice Farman flew over from Buc to Etampes with a passenger in order to test various machines, and in the evening returned to Buc by way of Orléans and Rambouillet. With Mme. de la Roche as passenger, Ram returned to Buc from the Ferte Vidamee, while Vial was making some long flights over the surrounding country.

Farman Superior Pilots.

ON Saturday a Comité National pupil—Rene David—at the Farman School at Etampes made a triangular flight over the Etampes-Vendome-Chateaudun course for a superior *brevet*, while on the previous day two C.N. pupils at Etampes, Touvet and Dufort made flights of an hour at a height of 1,000 metres on their M. Farman, this being their last practical test for superior certificates. On the 16th, David flew over Orleans at a height of 1,200 metres and covered 110 kiloms. in an hour.

Prince and Princess Henry in the Air.

ON one of the opening days of the flying meeting at Kiel last week Princess Henry of Prussia enjoyed a 20 minute trip on a biplane piloted by Lieut. Canter, while on the 17th Prince Henry was flying over the sea for an hour and a half at a height of 2,000 metres.

Two German Military Pilots Killed.

WHILE making a *vol plané* at Juterbog, on the 16th inst., the chassis of an aeroplane piloted by Lieut. Stoll was caught by the branches of a tree. The machine crashed to the ground, and while the pilot was killed the passenger escaped with slight injuries. At Frankfort on the 18th inst., Sergeant Wesperley fell from a height of 10 metres and sustained such severe injuries that he died half an hour after the accident.

The Ghent Aerial Post.

ON the 15th inst. Crombez carried a package of mail matter on his Deperdussin monoplane from the Ghent Exhibition to Bruges, then returning to Ghent, while on the 17th he paid a visit to Blankenberghe.

An Italian Fatality.

A 17-YEAR old pupil—Robert Fabbri—at a flying school at Milan met his death while making his first solo flight on a monoplane on the 14th inst. After flying for 20 mins. he commenced a descent from a height of 1,000 metres and apparently made a false manoeuvre, for the machine crashed to the ground, the pilot being instantly killed.

Flying From Milan to Brindisi.

IN an attempt for the Pirelli Cup for the longest flight with a passenger in a straight line, Deroye on the 17th inst. flew almost the length of Italy, and incidentally improved on the record for a non-stop flight with a passenger. Starting from Milan on an S.I.A. monoplane with 80 h.p. Gnome motor, Deroye flew the 806 kiloms. to Bari in 7 hrs. 44 mins., his course being by way of Parma, Bologna and Rimini. After a rest of four hours he restarted and flew the remaining 106 kiloms. to Brindisi. His flying time for the 912 kiloms. was 9 hrs. 16 mins.

Milan to Turin with Three Passengers.

WITH three passengers on board his Gabardini aeroplane with 80 h.p. Gnome motor, Cevases, on the 15th inst., flew from Milan to Turin, a distance of 150 kiloms., in 1 hour 10 mins.

With the Caudrons in China.

A FINE flight was made on the 3rd inst. on one of the Caudrons purchased by the Chinese Government, piloted by Rene Caudron, with Lieut. Bon as passenger. Leaving the Pekin race-course at 5.30 a.m., they covered the 70 miles to Tientsin in 1 hour 12 mins. After giving some demonstration flights on the following day, the machine was flown back to Pekin in 1 hour 5 mins.

American Officer for Gordon-Bennett.

IT is announced from Washington, D.C., that the U.S. War Department has granted a special furlough to Lieut. T. de Witt Milling, who holds an expert aviator's certificate, to visit Europe to practise for and fly in the Gordon-Bennett race in September. He is to pilot a Deperdussin monoplane with 200 h.p. motor.

Two American Pilots Dead.

IN a bad landing at Grove City, Pa., on June 12th, Carl Sandt sustained a compound fracture of a leg, and although, after the bones were set, he commenced to get better, tetanus suddenly set in and he died on June 22nd from blood poisoning.

A fatality occurred near Hammondsport on June 21st. A flying boat was being piloted by F. F. Gardiner over Lake Keuka when it suddenly dived into the lake. When the body of the pilot was recovered the following morning the doctors performed an autopsy and came to the conclusion that the pilot was stricken with apoplexy while in the air.

THE PLUMMER R.O.G. HYDRO.

MR. A. B. CLARK sends us sketches and a photograph of the winning model in the first competition for the "South Eastern Trophy," on June 28th last, with the following particulars:—This model—constructed by Mr. F. Plummer—succeeded in making flights of 25 secs. off water, and 20½ secs. off land, in addition to passing all the other tests stipulated in the regulations. These regulations were published in full in our issue of April 19th last, and on page 834 we give the rules for the second quarter's competition for the trophy.

The fuselage is 36 ins. in length, and is constructed of two $\frac{1}{8}$ in. square channel-section silver spruce, and three bamboo distance pieces. This fuselage may be described as a combination of the ordinary A frame and T frame types, as the two main longitudinal members are not splayed to the maximum at the propeller-bearing-outrigger, but this is supported in a similar manner as the usual T frame.

The distance pieces are let into the channels and glued, and afterwards bound over with $\frac{1}{4}$ in. silk ribbon.

The main plane is made of 18 S.W.G. piano-wire and has a maximum span of 29 ins. The chord at the centre is 6 ins. and the greatest camber, also at the centre, is $\frac{1}{4}$ in.

The elevator is merely a miniature edition of the main supporting surface and measures 10 ins. by 3 ins., with a camber of $\frac{1}{8}$ in. at the centre.

These planes are covered with light proofed silk, which is sewn on.

The propellers are 9 ins. in diameter and have a pitch of 22 ins., and each requires 11 strands of $\frac{1}{8}$ in. strip elastic weighing 1½ ounces.

The floats are made of $\frac{1}{8}$ in. whitewood and spruce, the former being used for the sides and the latter for distance-pieces.

The side-members are considerably reduced in weight by cutting away as shown in Fig. 5, which clearly illustrates the general construction of the floats before they are covered with proofed silk. This sketch also shows the method adopted for attaching the rear float to the fuselage as well as showing the small piano-wire skid used for starting off land.

Fig. 4 shows a pair of the brackets used for fastening the floats to the horizontal bamboo struts.

The front floats are 7 ins. in length and $3\frac{1}{4}$ ins. in breadth and have a maximum depth of $1\frac{1}{2}$ ins. The rear float measures 6 ins. by $3\frac{1}{4}$ ins. by $1\frac{1}{2}$ ins.

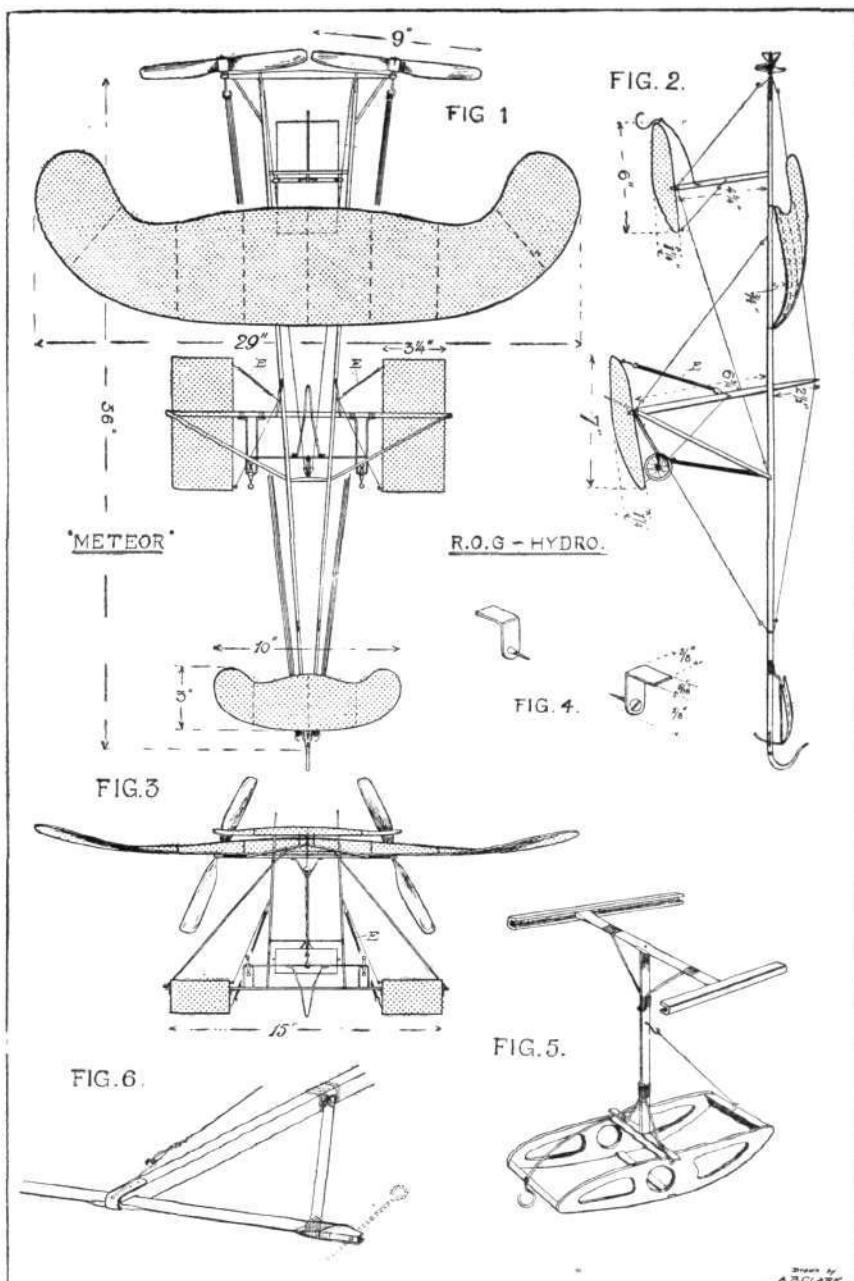
The wheels for starting from land are $\frac{5}{8}$ in. in diameter and are lifted clear previous to starting from water, as shown in sketches.

The position of the wheels for rising from land is clearly visible in the accompanying photograph. The forward floats are not rigidly attached, but are arranged that in the event of a collision, the nose of these floats may spring upwards, but whilst on the water they are held to their work by elastic tension springs at the rear of the floats (marked E).

The rear float is rigid.

The maximum number of turns given to each propeller is 750, and the model rises from water and land after travelling about 6 feet.

The total weight of model is 12 ounces.



MR. F. PLUMMER'S HYDRO MODEL.—Drawings to scale by Mr. A. B. Clarke.

PUBLICATIONS RECEIVED.

All the World's Aircraft (Aeroplanes and Dirigibles) Flying Annual. By Fred T. Jane. London: Sampson Low, Marston, and Co., Ltd., Overy House, 100, Southwark Street, S.E.

The Airman: Experiences while Obtaining a Brevet in France. By Captain C. Mellor, R.E. John Lane, the Bodley Head, Vigo Street, W. Price 3s. 6d. net.

Catalogues.

Concerning Aeronautics. The North British Rubber Co., Ltd., Castle Mills, Edinburgh.

North British Aeroplane and Balloon Fabrics. The North British Rubber Co., Ltd., Castle Mills, Edinburgh.



Reinforced Wood.

OUR contemporary American Aeronautics refers to patents taken out by A. G. Watkins in which soft wood is reinforced by sheet iron strips embedded in the wood edgewise and an electro deposition of a metallic coating is made on the surface of the timber. The object of the coating is as a protection against moisture and as a means of facilitating examination, the surface being such as to indicate strains very readily.

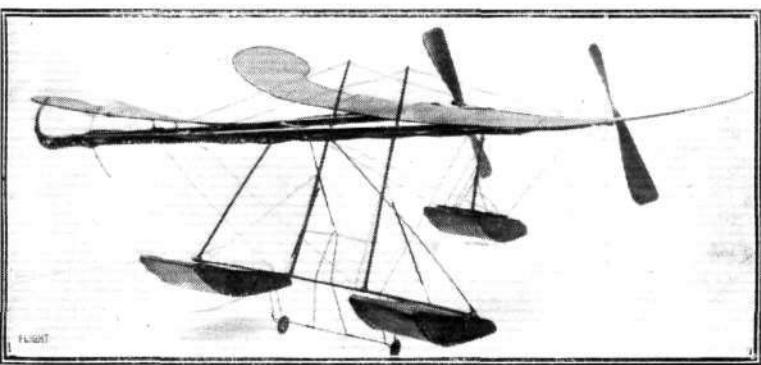
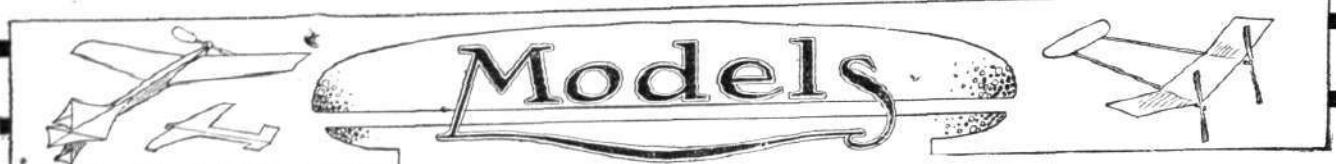


Photo by S. E. Grimstone.

View of Mr. F. Plummer's R.O.G.-hydro model, from which a good idea of the general arrangement of the planes, floats, &c., can be obtained.



Models

Edited by V. E. JOHNSON, M.A.

The Wind Tunnel as an Aid to Model Research.

In a paper read some little time ago to the Aeronautical Society by Mr. A. P. Thurston, on "Aeronautical Research in the Home," there was described a small wind tunnel some 1 ft. square, made of three-ply wood, and through which air could be drawn at any speed up to 20 m.p.h. by a 4-bladed fan mounted on a $\frac{1}{6}$ h.p. electric motor costing about £2. In conjunction with such must be used some form of anemometer which shall measure the velocity of the air in the tunnel. In order to read lift and drift ratios of aerofoil and other surfaces, head resistances, &c., some form of balance or parallel link motion is generally made use of. Some form of lattice work or grids are also usually employed to prevent rotation of the air current drawn through the tunnel. It is obvious the tunnel may be either horizontal or vertical, or a combination of both. It is also evident that it is a great advantage for the balance or recording instruments to be mounted on a section or case which is easily and quickly detachable; and which can be fixed to the tunnel in various positions.

So far as model research work is concerned, a wind tunnel velocity of 15 to 25 m.p.h. would be the most suitable; with regard to the dimension of the tunnel, most models have a considerably greater span than 12 ins. Thus, making due allowance for the relation which should hold between the height and breadth of the tunnel, and the specimen experimented on, a tunnel having a section 4 ft. square would be necessary to experiment with the general run of existing models. But if we increase our linear dimensions 4 fold, the area is increased 16 fold; or the amount of air to be drawn through to produce the same velocity in the larger as in the smaller tunnel is 16 times as great. As we increase the size of our tunnels, the necessary power required increases in such a manner as to render such experiments prohibitive where the ordinary aeromodeller is concerned, unless the wind tunnel be quite small.

It is quite possible to drive an air blast of 25 m.p.h. through a wind tunnel 1 ft. sq. section by means of a fan driven by foot power, making use of a heavy well-balanced and easily-running flywheel; and to do this for a time quite sufficient for a single test. Instead of using an electric motor, a water motor might be used, provided a 60 lb. pressure was available and the motor run direct off the tap. This would work out considerably cheaper than if an electric motor were employed. As Mr. Thurston says, "a vast number of useful experiments may be made in such a tunnel." The particular experiments described in the paper referred to were: "The distribution of pressure on rods and struts," "An apparatus for determining the travel of centre of pressure, the control torque, and the longitudinal stability coefficient of various plan forms of aeroplanes," and also some experiments on "Air Friction," with a view to determine the value of skin friction.

On the assumption that the matter was carried out by those who were prepared to give their time and lend all the mechanical assistance in their power, as well as anything they might have in the nature of scrap material, a series of very interesting and possibly valuable experiments could undoubtedly be carried out for a sum of not more than £5, and very possibly even much less than this. If there is anywhere where FLIGHT penetrates, any individual or body of individuals, who are keen on carrying out such a series of experiments, we shall be pleased to hear from them, and to put them in touch with those from whom they can obtain further assistance and guidance. Should such, unfortunately, not exist, then it is scarcely worth going further into the matter.

Apart altogether from wind tunnels, there exists other and totally different types of apparatus, such as whirling tables, &c., in which the body to be tested is carried through the air instead of the air past the body. A whirling table was constructed by the writer more than twenty years ago, by means of which he was able to rotate bodies of fair size, through the air, up to a speed of 45 m.p.h., by hand-power alone. The consideration of such must, however, be left over until our next issue.

Some Interesting Experiments with Hydro-Aeroplanes.

The following has been sent us by Messrs. H. C. H. Bracey, H. B. Brown and T. P. Lealand, of Birmingham:—"It will be seen from the accompanying illustrations that the model has floats of high aspect ratio. The photographs were taken before any trials were made. The rear float has since been moved forward to a position under the main plane. The central rod is 30 ins. long. The main plane of bamboo, 24 ins. by 4 ins., with slightly upturned tips. The elevator, 9 ins. by 2.25 ins., with a dihedral angle and

the tips of the trailing edge rounded off. Propellers, 8 ins. diameter, 24 ins. pitch. The rear float, 19 ins. by 2.75 ins., is placed with its leading edge 0.75 in. behind the c.g.—the c.g. being 2 ins. forward of the leading edge of the main plane. This float is curved upwards to the tips, and is set at a small angle of incidence, the bottom of the float being at about an angle of 1 in 16.

"With regard to the section, it will be seen that the upper surface is given a camber which is approximately Eiffel's No. XIII bis.

"The front float has a span of 10 ins., and is set at a large angle of incidence. The model complete weighs 7.5 ozs.

"After flotation and hydroplaning tests, actual free flight was attempted; the water was choppy. The results were as follows:—1st flight, very quick rise, alighted, after a short flight, on rear float and slowed up. 2nd flight, another quick rise, machine very unstable in the air, after a short flight the model side-slipped, the tip of one of the floats touched the water, with the result that it capsized and submarine, leaving only the bottom of the floats above the water. 3rd flight, a wave caught the propellers on starting, but in spite of the resultant splash, the model hydroplaned, finally leaving the surface quite easily. The machine was, however, over-elevated, and after a steep rise, the model dived; it did not, however, either capsize or dive [*i.e.*, in the water], but the front float skimming over the surface of the water, the machine, after a short run, was in the air again. This performance was repeated. After this followed a side-slip, and finally a submarine. 4th flight, alighted on both floats simultaneously, bumped and skinned. 5th flight, steady in the air, struck the skull [hull?] of another boat on alighting, but did not upset. The model never fails to rise; it leaves the water in the following manner: The front float skims almost immediately the machine is released; the rear one is more heavily loaded, and takes longer. The front then leaves the surface, the rear one following it out, the model rising in less than 12 ft. The machine is very unstable in the air. We intend trying the effect of a non-lifting tail and vertical fin. Another trouble we have experienced is float leakage. The floats are constructed of birch spars and satin walnut section plates, with silk covering. At first we varnished with Canada balsam. This leaked, and we added a coat of shellac varnish. This kept the water out until the battering



Messrs. Bracey, Brown and Lealand and their model hydro-aeroplane.

of the waves on the bottoms of the floats cracked it, and we are now seeking a varnish that is flexible and absolutely waterproof."

Referring to the above interesting account, our correspondents will find all their troubles *re* float leakage disappear if they varnish with "Bragg-Smith" varnish; as we know, from personal experience, it is the most flexible varnish we know of, and is perfectly waterproof, and keeps both its surface and colour.

With regard to the types of float used, these were first designed and advocated by the writer in the early days of model hydros. All his early models were fitted with such a type, and for light models they may prove, after all, the best. But they were given up for the following reasons: In very light models in which the *depth* of the layer of displaced fluid is very small, so small, in fact, that as soon

as the model begins to move over the surface of the water it at once begins to skim, they are most efficient. In fact, when *hydroplaning* they are undoubtedly the most efficient type. But when

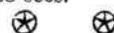
we come to heavier models, in which the depth of the layer of displaced fluid is more in proportion, the surface tension of the fluid being proportionately less in this case, then the same result does not follow. The model does not commence to move through the water at its skimming speed, or indeed at anything like it, as was demonstrated in a very practical manner with a power driven model at the Welsh Harp last year. Naturally until such a speed (the skimming speed) is attained, this type of float experiences far greater proportionate resistance than an end-on float.

This type of model also affords more than one knotty problem with regard to longitudinal stability. Practically speaking, however, such can be overcome. The longest duration ever attained by the writer with a model (tail type), fitted with such a type of float, was about 30 secs. The tendency was, as our correspondents have also discovered, for the model to side-slip and nose dive. When correctly designed and adjusted, good flights can, however, be obtained, under favourable conditions of the atmosphere.

Mr. R. V. Tivy's Steam Plant.

The following was received from Mr. R. V. Tivy too late for insertion in last week's issue:—"The engine (3-cylinder horizontal) weighs 5 ozs., and runs remarkably smoothly. Working with 25 to 30 lbs. steam-pressure, and using a testing-boiler, I was able to obtain 1,100 r.p.m., with two 12-in. Gamage centrale tractors clamped together; and 1,000 r.p.m. with a 15-in. two-bladed propeller of very steep pitch (about 20 ins.). I then ran the engine at 35 lbs. pressure, and got 1,800 r.p.m. out of a rather inefficient 12-in. tractor. As I shall be using a tubular boiler which will stand 50-60 lbs. pressure, there seems to be a very fair chance of my getting successful flights before the end of the year.

"Messrs. Palmer and Co. are letting me have the plant practically at cost price, and as this will be £3 to £4, I quite agree with your remarks in FLIGHT on the costliness of small plants. The total weight of the plant is to be 16 ozs., and the estimated power $\frac{1}{10}$ h.p. The model to which I propose to fit the plant is a very efficient one, and originally rose from the ground and flew with 2½ ozs. of rubber (total weight of model, 14 ozs.); duration of run 15 to 20 secs."



KITE AND MODEL AEROPLANE ASSOCIATION.

Official Notices.

British Model Records.

Hand-launched	Distance	...	R. Lucas	...	590 yards.
	Duration	...	A. F. Houlberg	...	89 secs.
Off ground	Distance	...	C. F. Dutton	...	296 yards.
...	Duration	...	{ A. F. Houlberg	...	80 secs.
Hydro, off water	Duration	...	J. E. Louch	...	
Single-tractor screw,	Distance	...	L. H. Slatter	...	45 secs.
hand-launched	Duration	...	F. G. Hindsley	...	173 yards.
Do., off ground	Duration	...	J. E. Louch	...	68 secs.
		...	J. E. Louch	...	45 secs.

Competitions.—The fifth annual competition for the Baden-Powell Challenge Shield for the best kite of the year, was held on July 19th, on Wimbledon Common, in a light breeze. There were 14 competitors, which included the holder, A. W. Brown, of Croydon. The judges were Major B. Baden-Powell, Messrs. R. M. Balston, F. Mayer and W. H. Akehurst, who made the following awards: 1st, A. W. Brown, with 281 marks; 2nd, H. W. Browne, with 257 marks; 3rd, J. C. H. Warwick, with 212 marks; 4th, G. T. White, with 209 marks. Major B. Baden-Powell, in announcing the awards, stated that Mr. Brown therefore retains the shield for the fourth year in succession and wins the gold medal of the Association. Mr. Browne won the silver medal of the Association, Mr. Warwick won the bronze medal of the Association. A vote of thanks to Major B. Baden-Powell was carried with enthusiasm.

Littlehampton Meeting, Bank Holiday.—Special excursion tickets will be issued from London bridge, Victoria, and all suburban stations on the L.B. and S.C.Ry. The price, return fare, will be 4s. Competitors should obtain special leaflets from stations, giving times of train. The hon. secretary will be pleased to receive all entries for this meeting at once, so that all arrangements can be made for judges, &c., as he will be at Burton on that day.

Burton-on-Trent Meeting.—The arrangements for cheap tickets can be had from Midland and G.N.Ry. Booking Offices. Entries closed on Wednesday, 23rd.

The above information is extremely interesting, especially that relative to the steam pressure, and the r.p.m. of the propeller; about which so far as models are concerned there appears to be, practically speaking, no information.

It will be interesting to see what Mr. Tivy's tubular boiler can do in actual practice. This type of boiler was, if we remember correctly, the first kind tried by Mr. H. H. Groves, but given up by him owing to its inefficiency so far as actual propeller thrust was concerned; a thrust of about 9 ozs. with a plant weighing 24 ozs. being the best result obtained. Moreover, such a plant is not without its dangerous element. In the case of a flash (steel coils) boiler, none such exists, because, comparatively speaking, only a few drops of water are ever in the boiler at one time. We know, personally, of several tubular boiler bursts; one case at any rate, in which it was pure chance alone that prevented serious results. Again, the flash boiler type of steam plant is so much more efficient, Mr. Groves having recently had a flight of over half a mile with one of his models. From the scientific side, pure and simple, it will, of course, be extremely interesting to see further tests with a tubular boiler plant.

Mr. Suffield's Experiments.

Referring to these Mr. Tivy says: "I am sorry that I have been quite unable to find out Mr. D. J. Suffield's address. At the time when I was introduced to Mr. Suffield, Mr. Tison gave me the account of the flights in Mr. Suffield's presence. This was two years ago. I have not seen Mr. Suffield for more than a year, and have no idea of his whereabouts."

Query.

A correspondent sends us the following:—

(1) What section rubber and how many strands would you advise for a single screw tractor r.o.g. monoplane, with 8-in. diameter propeller, 24-in. *fuselage* and 20-in. span?

(2) What duration should be obtained with the above model?

(3) What is the formula for finding the pitch of a propeller of given diameter, &c.? The difficulty in answering such a query as the above off-hand must be obvious to any competent aeromodellist, with the slight information given and none at all with respect to any especial aim for which the machine may or may not be designed. Naturally one has to commence by making a number of assumptions which may or may not be right. Since one query relates to duration, one rather suspects this is the real reason of the query; will therefore any reader who may have obtained good duration with the above type of model and approximately the given dimensions kindly send a reply? With respect to query No. 3, our correspondent will find an answer in the *Scientific American* supplement for March 30th, 1912. We trust our correspondent likes fractional indices and is not averse to mathematics. Should he be so, however, he will find in the article referred to, "The Design of Model Propellers and Elastic Motors," the results arrived at presented in the form of a simple chart, by the use of which all mathematical work is eliminated, and the solution becomes merely a process of correctly following certain curves. Perhaps it is only fair to our correspondent to add that the practical application of the formulae, &c., referred to has not, so far as the writer is aware, been especially successful.



Royal Aero Club Hydro Competition will be held at Welsh Harp, Hendon, on August 9th, at 3 o'clock. Entries close first post Saturday, August 2nd. For hydro-aeroplanes rising off water (open to the world), free to members. Entrance fee to non-members, 3s. Prizes: 1st, £5.5s. (presented by the Royal Aero Club) and certificate of the association; and third, value of prizes to be announced later. Tests: A—duration; B—stability. Maximum marks, 100—75 for duration, 25 for stability. Rules:—1. Competitors must be at the judges' flag at 2.45. Any competitor not present at that time will be disqualified. 2. Models must not weigh less than $\frac{1}{2}$ lb. 3. Competitors will be allowed to make reasonable repairs at the discretion of the judges. 4. Competitors will not be allowed to replace any part without the permission of the judges. 5. Each competitor is entitled to three trials. 6. All competitors must launch their machines in the same direction. Non-competitors, admission to ground, 3d., payable only at gate.

Official Trials.—The usual monthly trials will take place on Wimbledon Common to-day (Saturday, 26th), at 3 p.m., on the Plain, Wimbledon side of the Windmill.

27, Victory Road, Wimbledon.

W. H. AKEHURST, Hon. Sec.

AFFILIATED MODEL CLUBS DIARY.

CLUB reports of chief work done will be published monthly for the future. Secretaries' reports, to be included, must reach the Editor on the last Monday in each month.

Leytonstone and District Aero Club (64, LEYSPRING ROAD.)

JULY 27TH, hydro practice 6.30 a.m., Model Yacht Pond, Wanstead Flatts. At 10 a.m., model flying near Brickfields. July 30th, general meeting, 64, Leyspring Road, 8 p.m.

Manchester Model Ae.C. (14, WARWICK RD. N., OLD TRAFFORD).

AUGUST 2ND, r.o.g. competition for best duration average of five consecutive flights, 1st and 2nd prizes. The club would be pleased to receive catalogues of model aeroplane accessories.

Paddington and Districts (77, SWINDERBY ROAD, WEMBLEY).

JULY 26TH, club competition at Sudbury, r.o.g. handicap, three prizes

Result of Paddington Cup: Winner, Mr. A. F. Houlberg (K. and M.A.A.), silver-gilt medal, and holds cup for year, duration, 88 secs.; 2nd prize, silver medal, Mr. T. Carter (Paddington), 82 secs.; third prize, bronze medal, Mr. C. C. Dutton (Paddington), 78 secs. Other durations were: Mr. A. Cannell (Paddington), 75 secs.; Mr. H. G. Bond (N.E. London), 74 secs.; Mr. J. E. Louch (N.E. London), 55 secs., and Mr. J. Mc Birnie (Aero Models Assoc.), 55 secs. These times are the best yet recorded in any r.o.g. competition.

Keigate, Redhill and District (THE COTTAGE, WOODLANDS AVENUE, REDHILL).

JULY 26TH, exhibition flying at sports, at "Frenches," Redhill. Members meet at club, 2 p.m.

Sheffield Aero Club (35, PENRHYN ROAD, SHEFFIELD).

JULY 26TH, the President's challenge cup for hydro-aeroplanes. Members meet in club room, 2.30. Flying at 3.30 sharp.

Wimbledon and District (165, HOLLAND ROAD, W.).

JULY 27TH AND 28TH, flying as usual. A sweepstake for r.o.g. models is to be held shortly. For full particulars apply to the sec., on Saturday afternoon. Entry forms for the *Model Engineer* Exhibition may now be obtained from the sec.

UNAFFILIATED CLUB.

S. Eastern Model Ae.C. (1, RAILWAY APPROACH, BROCLEY).

ON JULY 26TH, qualifying flights for South Eastern Trophy competition (2nd quarter) will be officially timed, and, as stated in the rules (which appear below), members who obtain a duration of 10 secs., or more, will be entitled to an allowance of 10 per cent. on any further official flights they may then make, or on either of the two other days reserved for the competition. Flying meetings this week-end at Woolwich Common, Blackheath, Crofton Park, Mitcham, and Grove Park.

SOUTH EASTERN TROPHY COMPETITION. Rules for 2nd Quarter (July—September), 1913.

1. This competition shall be open to members of the S.E.M.Ae.C. only, and is for models of the tractor type, capable of rising from the ground entirely under their own power, and
2. Must weigh not less than 16 ozs. in complete flying order.
3. Models may be fitted with one or more tractor screws,
4. And the fuselage must be of the built-up variety, with not less than three longitudinal members. (This rule does not apply to bodies of the "coque" type).
5. Models will be required to make qualifying flights, the minimum duration being 10 secs. off the ground.
6. The motive-power may be either elastic, clockwork, steam, compressed air, or other suitable means devised by the competitor.
7. The whole of the model (excepting wheels, wire strainers, and tractor screws), must be constructed by the competitor.
8. The official flights will be timed on Saturdays, July 26th, August 30th, and September 27th, and competitors flying on the first-mentioned date will be given an allowance of 10 per cent. increase on their times, and 5 per cent. increase will be allowed to those competing on August 30th. (These allowances will not be given for qualifying flights).
9. Models will be required to start from *very short grass*, but no artificial surface will be provided.
10. Models will be required to alight on the chassis at the termination of one official flight, and remain in a proper attitude for a minimum period of 5 minutes.
11. At the completion of their official flights models must be in an undamaged condition, unless the judges decide that such damage is caused by unfavourable weather conditions.
12. Competitors may change, repair, or add to their motive-power as often as necessary.
13. Models must be fitted with effective protectors. (This rule will be strictly enforced.)
14. Competitors pushing, or otherwise assisting their models to rise, will be disqualified from that round, and members who commit a breach of this rule on more than one occasion will be debarred from taking further part in this competition.
15. The winner shall be the competitor who obtains the greatest duration (including the allowances named in Rule 9) on one of the official dates.
16. Three entries will be allowed on each of these days if time permits.
17. Competitors must be responsible for all damage done by or to their models.
18. Competitors may enter any number of models.
19. This event will be declared void unless three or more competitors qualify.
20. The judging committee shall consist of three non-competitors.
21. These rules may be amended, or otherwise added to, at the discretion of the judges.



CORRESPONDENCE.

Aerial Nomenclature.

[1770] Has not the time now arrived in which some steps should be taken with regard to aerial nomenclature? Surely this is a duty that devolves upon the scientists and inventors themselves, backed by the aviation publications, rather than upon the lay "popular" press, whatever the claims of the latter may be in other directions. A sort of weird jargon has arisen among the general public in which terms invented by ignorant or careless reporters are universally adopted in total disregard to the correct and technical appellations in vogue amongst those most closely connected with flying.

Unfortunately, the countries of the world have as yet not arrived at that pitch of unselfishness when a universal language (such as Esperanto) will be adopted to describe a subject so thoroughly international as the air, a realm which, notwithstanding recent legislation, has so far no well-defined boundaries.

In spite of the fact that the first practical heavier-than-air machines hailed from the United States, France by her enthusiasm and vast expenditure of men and money in the cause of aviation has the prior claim to invent a vernacular applicable to the science. Just as the words chauffeur and garage are in general use in this country (though often woefully mispronounced), there is no reason why French technical terms relating to flying should not come as easy to the

tongue of that much abused personage, the "man-in-the-street," even if he imposes an accent of his own upon them. Amongst all British aviators and constructors the universal application of French names for all the various parts of an aeroplane or airship—excepting those relating to the engine—is common, although in the opinion of many a Latin root for all fresh words that will have to be invented would be more suitable.

Lately a new word has been inflicted upon us by various enterprising journalists not specially connected with aviation. This is "waterplane," which, as it means exactly the same as hydroplane (a kind of motor boat), is totally unsuitable to describe a machine which embraces two entirely distinct types: the flying-, or aero-, boat and the hydro-aeroplane. The latter of these words is too bulky ever to become popular; the French term *hydravion* is shorter, and there is nothing to boggle over in its pronunciation. The ridiculous appellation "airman" is frequently encountered in the lay press to the almost entire exclusion of its correct and original equivalent, *aviator*. Why is a matter of conjecture, and one can only hazard the opinion that although we may copy foreign machines and methods we have a John Bullish hatred of having their names thrust upon us.

In conclusion, it is admitted that the matter is a small one, and that "a rose," &c.; yet if the technology of aviation is not to be left to the invention of a few irresponsible journalists, it behoves the scientific press to educate the public up to a more correct standard, instead of allowing them to be imposed upon by fanciful and entirely inapplicable slang-words.

"COSMOPOLITAN."

[1771] May I be permitted a small space in your valuable paper for the purpose of making a few suggestions in regard to the nomenclature employed to distinguish flying craft? I have noticed from time to time that certain types of craft are called by different names, very often within the compass of the same descriptive article, both in the daily papers and in the more scientific; and it was recently stated in the House of Commons, during a discussion concerning aviation, that suggestions for standardising the names of the various types of craft would be welcomed, so that confusion might be avoided in the future. I beg, therefore to submit the following.

Taking the French word "Avion" as the basis for all flying machines intended for war purposes, and the English word "Aeroplane" as the basis for all machines intended for commercial or pleasure purposes we get:—

(a) For a "War Flying Machine," intended to alight only on land: "Teravion."

(b) For a ditto, on water: "Aquaavion."

(c) For a ditto, on land and water: "Teraquavion."

(d) For a commercial or pleasure machine, intended to alight only on land: "Teraplane" or "Teraeroplane."

(e) For a ditto, on water: "Aquaeroplane" or "Aquaeroplane."

(f) For a ditto, on land and water: "Teraquaplane" or "Teraquaeroplane," with, of course, the necessary prefixes of "bi" and "mono," to signify the class of machine, thus: "Bi-Teravion," "Mono-Teravion"; "Bi-Teraeroplane," "Mono-Teraeroplane."

Trusting these suggestions are not too scientific for general use. Ealing.

C. F. WEBB, B.A.



Aeronautical Patents Published.

Applied for in 1912.

Published July 24th, 1913.

19,864. A. SPRATER. Stabilising devices.

22,1027. W. S. WILLIAMS. Aerial machines.

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